Document ID: EDF-ER-201
Revision ID: 0
Effective Date: September 2000

Engineering Design File

ROD Amendment Cost Estimate Support Data Recapitulation

Prepared for:
U.S. Department of Energy
Idaho Operations Office
Idaho Falls, Idaho

INEEL
Idaho National Engineering & Environmental Laboratory
BECHTEL BWXT IDAHO, LLC

Form 412.14
10/05/99
Rev. 02

431.02
08/12/98
Rev. 06

ENGINEERING DESIGN FILE

Functional File No. INEEL/EXT-2000-01105

EDF No. EDF-ER-201

1. Project File No. 6223-AD 2. Project/Task WAG 1/ OU 1-07B/ Rod Amendment

3. Subtask

4. Title: ROD Amendment Cost Estimate Support Data Recapitulation

5. Summary: A cost estimate has been performed for the two proposed alternatives described in the "ROD Amendment for the Technical Support Facility Injection Well (TSF-05) and Surrounding Groundwater Contamination (TSF-23) and Miscellaneous No Action Sites, Final Remedial Action." Alternative 1 was pump-and-treat of the hot spot, the medial zone, and monitored natural attenuation of the distal zone. The total project cost was $39 Million for Alternative 1 and $34 Million for Alternative 2. This total cost was based on the net present value with a discount rate of 7%.

6. Distribution (complete package):

Distribution (summary package only):

7. Review (R) and Approval (A) Signatures: (Minimum reviews and approvals are listed. Additional reviews/approvals may be added as necessary.)

	R/A	Printed Name	Signature	Date
Author	R	John D. Folker	John Folker	10/2/00
Independent Verification	R/A	Lee O. Nelson	Lee O Nelson	9/21/00
Project Manager	R/A	Joseph S. Rothermel	Joe Rothermel	9/21/00

CONTENTS

ACRONYMS

ASTU	Air Stripper Treatment Unit
D&D	decontamination and dismantlement
DPTU	Dissolved Phase Treatment Unit
FDR	Field Demonstration Report
FY	fiscal year
GWTF	Groundwater Treatment Facility
ISB	In Situ Bioremediation
ISCO	In Situ Chemical Oxidation
MNA	monitored natural attenuation
NGWTF	New Groundwater Treatment Facility
NPTF	New Pump and Treat Facility
NPV	net present value
OU	operable unit
P&T	pump & treat
RAWP	Remedial Action Work Plan
RD/RA	Remedial Design/Remedial Action
ROD	Record of Decision
SOW	Statement of Work
TAN	Test Area North
WP	Work Package

Bechtel BWXT Idaho, LLC

COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title: OU 1-07B ROD Amendment Alternatives
Estimator: J. D. Folker
Date: August 21, 2000
Estimate Type: Planning
File: 6223-AD
Approved By:

I. SCOPE OF WORK:

This cost estimate covers the following two remediation alternatives for the Test Area North (TAN) Final Groundwater Remediation, Operable Unit (OU) 1-07B:

- Alternative 1—Pump and Treat (P&T) of the Hot Spot, the Medial Zone, and the Distal Zone.

- Alternative 2—In Situ Bioremediation (ISB) of Hot Spot, P&T of the Medial Zone, and Monitored Natural Attenuation (MNA) of the Distal Zone.

These two alternatives are the result of the completion of treatability studies conducted in accordance with the original 1995 1-07B Record of Decision (ROD). The OU 1-07B Field Demonstration Report (March 2000) identifies ISB and MNA as being more effective than the P&T remedy identified in the 1995 ROD for two areas of the contaminant plume: the hot spot and the distal zone. Alternative 1 represents the original 1995 ROD remedy, while Alternative 2 represents modification to the original remedy to replace P&T in the hot spot and distal zones, with ISB and MNA respectively.

This planning estimate provides an estimate of the total life cycle cost for each alternative. The time frame represented is from preparation of the original Remedial Design/Remedial Action (RD/RA) Statement of Work (SOW) in 1995 through 2030. The estimate for both Alternative 1 and Alternative 2 utilizes actual costs for the time frame from 1995 through fiscal year (FY) 1999. The estimate for each alternative then uses estimated costs for FY 2000 through FY 2030. The estimated time frame costs are estimated in current year (FY 2000) dollars with total life cycle cost for each alternative being identified as the actual cost through FY 1999 plus the estimated cost from FY 2000 through FY 2030.

In addition, net present value (NPV) costs are calculated for each alternative. This NPV cost includes actual costs through FY 1999 plus estimated costs from FY 2000 through FY 2030. The NPV calculation is applied only to the estimated cost time period. The NPV is calculated by using an overall discount rate of 7% per year.

A summary of the scope for each alternative is described below: the estimated time frame for implementing the scope for each alternative is provided in Appendix A and B. The Summary Schedule for Alternative 1 and 2 is shown in Appendix C and D.

Bechtel BWXT Idaho, LLC

COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title:	OU 1-07B ROD Amendment Alternatives
Estimator:	J. D. Folker
Date:	August 21, 2000
Estimate Type:	Planning
File:	6223-AD
Approved By:	

I.A Alternative 1—Pump and Treat of the Hot Spot, the Medial Zone, and the Distal Zone.

This alternative represents the original P&T remedy as identified in the 1995 ROD and as modified in the 1997 Explanation of Significant Differences. This alternative is based on the assumption that treatability studies do not identify any alternate technology to be more effective than P&T. The summary level scope for FY 2000 through FY 2030 for this alternative is:

- Project Management
- Treatability Studies—Field Demonstration Report (FDR) #1, In Situ Chemical Oxidation (ISCO) Field Evaluation, MNA Field Evaluation, FDR #2.
- New Groundwater Treatment Facility (NGWTF)—Design and Construction of a NGWTF for the hot spot.
- New Pump and Treat Facility (NPTF)—Construction of a NPTF for the medial zone.
- Dissolved Phase Treatment Units (DPTUs)—Design and construction of the two DPTUs for the distal zone.
- Performance Monitoring Wells—Design and construction of performance monitoring wells for the hot spot, medial zone, and distal zones.
- Remedial Action Work Plan (RAWP)—Revision to the Phase C RAWP and supporting documents to address the NGWTF and DPTUs.
- Phase B Hot Spot Containment—Continued operation of the existing hot spot Groundwater Treatment Facility (GWTF) or Air Stripper Treatment Unit (ASTU) until the NGWTF is operational.
- Phase C Operations—Operation and maintenance of the NGWTF, NPTF, and DPTUs for hot spot containment and dissolved phase treatment.
- Surveillance and Monitoring—Groundwater monitoring and remedy performance monitoring including 5 year reviews.
- Operations and Maintenance Report
- Decontamination and Dismantlement (D&D)—D&D of the GWTF, ASTU, NGWTF, NPTF, and DPTUs. Abandonment of monitoring and remediation wells.

Bechtel BWXT Idaho, LLC

COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title: OU 1-07B ROD Amendment Alternatives
Estimator: J. D. Folker
Date: August 21, 2000
Estimate Type: Planning
File: 6223-AD
Approved By:

I.B Alternative 2—In Situ Bioremediation of Hot Spot, Pump and Treat of the Medial Zone, and Monitored Natural Attenuation of the Distal Zone.

This alternative represents the new proposed remedy as identified in the 1-07B FDR (March 2000). This alternative is based on the conclusion in the Functional Design Requirement that ISB and MNA are more effective than P&T in the hot spot and distal zones, respectively. The summary level scope for FY 2000 through FY 2030 for this alternative is:

- Project Management
- Treatability Studies—FDR #1, ISB treatment system pre-design operations.
- Proposed Plan and ROD Amendment
- RD/RA SOW —New or revised RD/RA SOW
- ISB Treatment System—Design and construction modifications for an ISB treatment system for the hot spot.
- NPTF—Construction of a NPTF for the medial zone.
- Performance Monitoring Wells—Design and construction of performance monitoring wells for the hot spot, medial zone, and distal zones.
- RAWP—Revision to the Phase C RAWP and supporting documents to address the ISB Treatment System and MNA.
- Phase B Hot Spot Containment—Continued operation of the existing ISB treatment system and ASTU until the modified ISB treatment system is operational.
- Phase C Operations—Operation and maintenance of the ISB Treatment System and NPTF for hot spot and medial zone treatment.
- Surveillance and Monitoring—Groundwater monitoring and remedy performance monitoring, including 5 year reviews.
- Operations and Maintenance Report
- D&D—D&D of the GWTF, ASTU, ISB Treatment System and NPTF. Abandonment of monitoring and remediation wells.

Bechtel BWXT Idaho, LLC

COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title:	OU 1-07B ROD Amendment Alternatives
Estimator:	J. D. Folker
Date:	August 21, 2000
Estimate Type:	Planning
File:	6223-AD
Approved By:	

II. BASIS OF THE ESTIMATE:

This estimate includes drawings, design reports, engineers notes and/or other documentation upon which the estimate originated and are shown as follows:

a. Alternative 1 & 2, Summary Work Breakdown Structure with actual costs through 1999.

b. ROD Alternative Cost Estimate Input, Phase B Treatability Studies.

c. ROD Amendment, Ground Water Monitoring Cost Estimate.

d. ROD Alternatives, Treatability Study Estimate Summary.

e. Operating Cost Estimate at New GWTF by Joint Control Group dated 08-26-99 & 08-25-99.

f. Construction Costs at New GWTF by Joint Control Group dated 08-26-99.

g. OU 1-07B, TAN Final Ground Water Remediation. Work Package (WP)-16-DPTU. Planning Estimate File #6223-S.

h. OU 1-07B, TAN Final Groundwater Remediation WP 10, Ground Water Monitoring FY 2000. WP Detail Estimate File # WP 10.

i. WP-11, ISCO Summary Costs FY 00, 01.

j. WP-11, Natural Attenuation Summary, FY 00, 01.

k. WP-11, Functional Design Requirements Summary FY 00, 01.

l. WP-9, NPTF/ISB. FY 03 to FY 30 Facility Operations Costs.

m. WP-9, NPTF Operations FY 01 to FY 02 Facility Operations.

n. WP-5, NGWTF, NPTF & DPTU's FY-00 to FY-30.

o. Preliminary NGWTF 10% Remedial Design, TAN, OU 1-07B (DRAFT).

p. Preliminary ISB 10% Remedial Design, TAN, OU 1-07B (DRAFT).

q. WP-7 Hot Spot Containment, ASTU FY 01, 02, 03 Facility Operations

r. D&D Estimate Models for CFA-603

Bechtel BWXT Idaho, LLC

COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title:	OU 1-07B ROD Amendment Alternatives
Estimator:	J. D. Folker
Date:	August 21, 2000
Estimate Type:	Planning
File:	6223-AD
Approved By:	

III. ASSUMPTIONS:

Assumptions are condition statements accepted or supposed to be true without proof of demonstration. An assumption has a direct impact on total estimated cost.

- Alternative 1: Construction of 2 DPTUs required for P&T for the distal zone.
- Alternative 1 & 2: Monitoring complete in 2030.

IV. CONTINGENCY GUIDELINE IMPLEMENTATION:

The percentage used for contingency as determined by the contingency allowance guidelines can be altered to reflect the type of construction and conditions that may impact the total estimated cost. A contingency of + 50%/- 30% is applicable to estimated costs per DOE cost estimating guidelines. The contingency has not been included with total project costs.

V. OTHER COMMENTS/CONCERNS SPECIFIC TO THE ESTIMATE:

V.A.1 Scope

This task covers project management activities for implementing the TAN Groundwater Remediation Project. Scope under this task includes project planning, baseline development, project execution, project performance monitoring and reporting, and baseline management. Project planning includes scope development, schedule development, and activities duration and cost estimating. Currently, annual project planning is at a detailed work package level. It will remain at this level for the next two years of the project scope with a planning level to be initiated thereafter. Project execution includes detailed planning for task implementation and work authorization and control. Performance monitoring includes tracking schedule and cost status, performance measurement and corrective action development, and providing monthly performance reporting and estimates to complete. Baseline management includes scope management and change control to ensure work is performed within the project baseline.

The scope under this task also includes project integration support of the Department of Energy Idaho Operations Office in regular weekly conference calls and quarterly meetings with the Environmental Protection Agency and Idaho Department of Health and Welfare in order to meet the requirements of the Federal Facility Agreement and Consent Order (FFA/CO).

The general scope of this task for Alternative 1—P&T and Alternative 2—ISB, P&T, and MNA is the same. The level of project management during RD/RA SOW development and RD/RA Construction is estimated at a higher level than during Remedial Action Operations.

Bechtel BWXT Idaho, LLC

COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title: OU 1-07B ROD Amendment Alternatives
Estimator: J. D. Folker
Date: August 21, 2000
Estimate Type: Planning
File: 6223-AD
Approved By:

V.A.2 Schedule

The schedule for this task runs from 1995 to 2030. The total estimate includes actual cost through FY 1999 and estimated cost from FY 2000 through FY 2030. See Appendix A and B for the summary schedule for each alternative.

V.A.3 Cost Basis

The following information is based on actual resources and costs experienced on the project from FY 1995 through FY 1999.

Resources for this task include the following:

- Waste Area Group 1 PBS Manager
- Waste Area Group 1 Project Engineer
- Project Manager
- RD/RA Manager
- Project Engineer
- Project Controls Engineer
- Cost Estimator
- Administrative Support

Appendix C provides the Life Cycle Analysis for Alternative 1 and 2, while Appendix D provides a more detailed Cost Summary Analysis by fiscal year for each alternative.

V.A.3.a Alternative 1—Pump and Treat

For Alternative 1, the project management continues at a steady level through FY 2003 in support of completion of ISB and ISCO field evaluations, design and construction of the NPTF, design and construction of the NGWTF, and design and construction of the DPTUs. The level of project management decreases significantly in FY 2004 when all three pump and treat systems are in operation and when D&D is performed on the GWTF and ASTU. From FY 2005 to FY 2030, project management is provided at a level appropriate for ongoing treatment system operations, biannual groundwater monitoring, and five year reviews beginning in FY 2005.

V.A.3.b Alternative 2—ISB, Pump and Treat, and MNA

For Alternative 2, the project management continues at a steady level through FY 2002 in support of completion of the ISB field evaluation, design and construction of the NPTF, and design and construction of the ISB Treatment System. The level of project management decreases significantly in FY 2003 when the NPTF and ISB systems are in operation and when D&D is performed on the GWTF and ASTU. From FY 2004 to FY 2030, project management is provided at a level appropriate for ongoing treatment system operations, biannual groundwater monitoring, and five year reviews beginning in FY 2005.

V.B WBS1.2 Treatability Studies

V.B.1 Scope

This task covers planning and implementation of treatability studies on five innovative technologies in accordance with the OU 1-07B ROD. The technology evaluation is conducted using a three step process that includes (1) initial evaluations, (2) lab studies, and (3) field evaluations. As of September 1999, evaluations were completed on two of the technologies including metal enhanced reductive dechlorination and grout. Field evaluations were implemented for MNA and ISB. Design of a field evaluation was completed for ISCO, but the decision to perform the ISCO field evaluation was dependent on the success of the ISB field evaluation.

The general scope for all treatability studies includes technical integration of technological evaluation activities, development of work plans for lab studies and field evaluations, conducting lab studies, design and construction for field evaluations, operations of treatment systems for field evaluations, well design and construction, sampling and analysis during field evaluations, and data analysis and reporting of lab and field evaluation results. The scope also includes preparing field demonstration reports to summarize the results of the technological evaluations and to recommend and facilitate agency decisions based on the results of the field evaluations.

The scope of this task for Alternative 1—P&T and Alternative 2—ISB, P&T, and MNA varies based on the outcomes of the technological evaluations. Alternative 1 assumes that none of the alternate technologies are determined to be more effective than the base case pump and treat remedy. Alternative 2 is based on ISB and MNA being determined to be better than the base case pump and treat remedy for the hot spot and distal zone, respectively.

- Alternative 1—For this alternative, field evaluations are conducted for ISB, ISCO, and MNA. Field evaluation reports are prepared for ISB and ISCO. The ISCO field evaluation follows the ISB field evaluation at the hot spot and two FDR are prepared. The first FDR documents the results of the ISB field evaluation, the earlier decisions on metal enhanced

reductive dechlorination and grout, and provides a status on the MNA field evaluation. A second FDR documents the results of the ISCO and MNA field evaluations.

- Alternative 2—For this alternative, field evaluations are conducted for ISB and MNA. One FDR is prepared documenting the results of both the ISB and MNA. Based on the results of the field evaluations, no second FDR is necessary and the ISCO field evaluation is not performed. A proposed plan and ROD amendment are prepared to implement the agency decision in the FDR for ISB and MNA.

V.B.2 Schedule

- Alternative 1—The ISB field evaluation is finished in early FY 00. The first FDR is prepared and submitted in FY 00. The ISCO field evaluation is conducted from second quarter FY 00 through the first quarter FY 01. The MNA field evaluation continues during FY 00 and is completed in FY 01. The second FDR is prepared and submitted in FY 01.

- Alternative 2—The ISB field evaluation is finished in early FY 00 but continues during FY 00 as a pre-design optimization activity. The MNA field evaluation is also finished in early FY 00 but also continues during FY 00 as an interim activity. The FDR is prepared and submitted in early FY 00. A proposed plan and ROD amendment are prepared in FY 00. The ROD is finalized in FY 01.

V.B.3 Cost Basis

The tasks and cost basis described below are based on planning performed in FY 99 and FY 00. This information is also based on actual resource needs and costs experienced on the project from FY 1995 through FY 1999. Cost basis information is provided below. For the majority of the tasks identified below, detailed cost estimates were previously developed and have been utilized in this planning estimate.

V.B.3.a Alternative 1—Pump and Treat

a. ISB Technical Integration—Technical integration during preparation of the field evaluation report in FY 00.

b. ISB Field Evaluation Report—Preparation of the field evaluation report in FY 00, documenting the results of the ISB field evaluation performed in FY 99.

c. ISCO Technical Integration—Technical integration during the performance of the ISCO field evaluation in FY 00.

d. ISCO Field Evaluation—The field evaluation, to be conducted in FY 00, includes the scope as described in the ISCO Field Evaluation Work Plan, November 1999. These activities include: (1) pre-ISCO baseline sampling, clean water flood, and tracer test, (2) ISCO treatment system construction, startup, and pre-final inspection, and (3) performance of the ISCO field evaluation, including an optimization phase and a validation phase.

e. ISCO Field Evaluation Report—Preparation of the Field Evaluation Report in late FY 00, documenting the results of the ISCO field evaluation performed in FY 00.

f. MNA Technical Integration—Technical integration during the performance of the MNA field evaluation in FY 00.

g. MNA Vertical Profile Sampling—Vertical profile sampling in FY 00 and FY 01 in accordance with the Groundwater Monitoring Plan.

h. MNA Data Analysis and Site Conceptual Model Update—Data review and analysis from groundwater monitoring in FY 00. Preparation of update to Site Conceptual Model in FY 00.

i. MNA Monitoring Wells—Design, construction, and development of three new monitoring wells in FY 00. Sampling and analysis of the P-Q inter-bed during the drilling of the three new monitoring wells in FY 00. Preparation of Well Completion Report for monitoring wells. Well site reseeding and access road graveling.

j. MNA Modeling—Perform modeling to support MNA field evaluation.

k. FDR #1—The first FDR documents the results of the ISB field evaluation, the earlier decisions on metal enhanced reductive dechlorination and Grout, and provides a status on the MNA field evaluation. This FDR is prepared in FY 00.

l. FDR #2—The second FDR documents the results of the ISCO and MNA field evaluations. This FDR is prepared in FY 01.

m. Treatability Studies Technical Integration—Technical integration during the preparation of the second FDR in FY 01.

V.B.3.b Alternative 2—ISB, Pump and Treat, and MNA

a. ISB Technical Integration—Technical integration during ISB pre-design activities in FY 00 as listed below.

b. ISB Field Evaluation Report—Preparation of the field evaluation report in FY 00, documenting the results of the ISB field evaluation performed in FY 99.

c. ISB Modeling—Modeling for process optimization performed in FY 00.

d. ISB Pre-Design Optimization—ISB treatment system pre-design operations monitor electron donor persistence and distribution in FY 00.

e. ISB Alternate Electron Donor Evaluation—Perform an alternate electron donor evaluation lab study.

f. ISB Design Optimization Work Plan—Preparation of the ISB Design Optimization Work Plan in FY 00 as described in the FDR to cover continuation of ISB treatment system operations and support further information gathering for the final ISB treatment system design.

g. ISB Performance Monitoring Strategy Development—Performing a data quality objective process to develop the performance monitoring strategy for ISB at the hot spot.

h. MNA Technical Integration—Technical integration during the performance of the MNA field evaluation in FY 00.

i. MNA Vertical Profile Sampling—Vertical profile sampling in FY 00 and FY 01 in accordance with the Groundwater Monitoring Plan.

j. MNA Data Analysis and Site Conceptual Model Update—Data review and analysis from groundwater monitoring in FY 00. Preparation of update to Site Conceptual Model in FY 00.

k. MNA Monitoring Wells—Design, construction, and development of three new monitoring wells in FY 00. Sampling and analysis of the P-Q inter-bed during the drilling of the three new monitoring wells in FY 00. Preparation of Well Completion Report for monitoring wells. Well site reseeding and access road graveling.

l. MNA Modeling—Perform modeling to support MNA field evaluation.

m. MNA Performance Monitoring Strategy Development—Performing a process to develop the performance monitoring strategy for MNA in the distal zone.

n. FDR—One FDR is prepared, documenting the results of both the ISB and MNA.

o. Proposed Plan and ROD Amendment—A proposed plan and ROD amendment are prepared to implement the agency decision in the FDR for ISB and MNA.

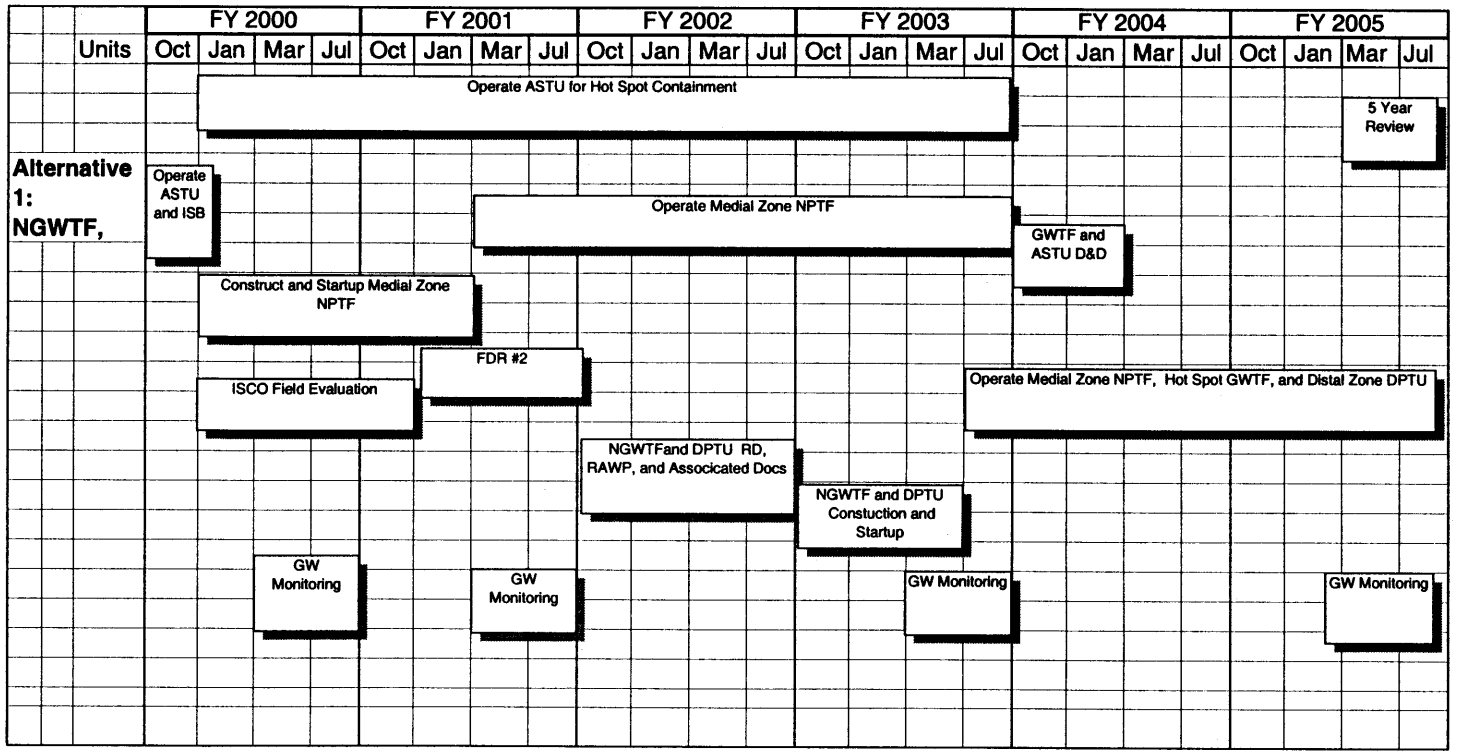
Bechtel BWXT Idaho, LLC

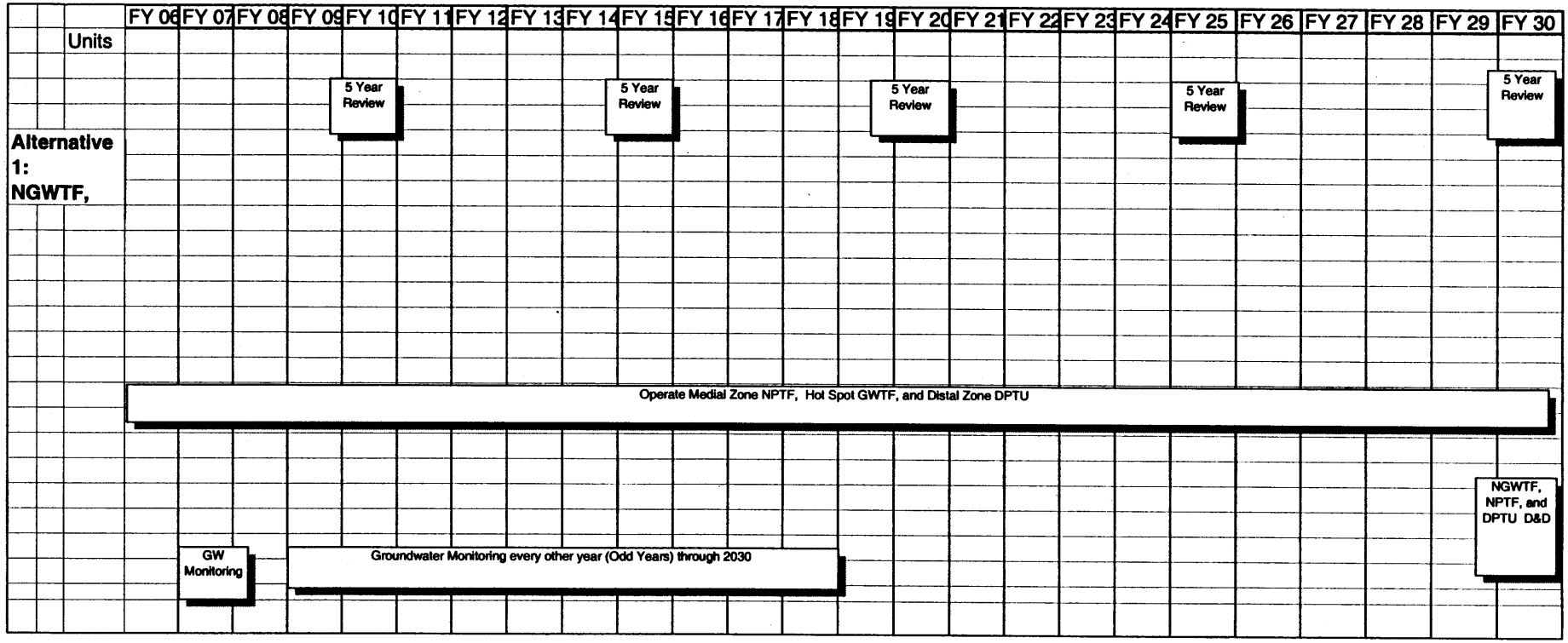
COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title:	OU 1-07B ROD Amendment Alternatives
Estimator:	J. D. Folker
Date:	August 21, 2000
Estimate Type:	Planning
File:	6223-AD
Approved By:	

Appendix A

Alternative 1 Schedule: New Groundwater Treatment Facility, New Pump and Treat Facility, and Dissolved Phase Treatment Unit


Units
FY 2000
FY 2001
FY 2002
FY 2003
FY 2004
FY 2005
Oct
Jan
Mar
Jul
Operate ASTU for Hot Spot Containment
5 Year Review
Alternative 1: NGWTF,
Operate ASTU and ISB
Operate Medial Zone NPTF
GWTF and ASTU D&D
Construct and Startup Medial Zone NPTF
FDR #2
ISCO Field Evaluation
Operate Medial Zone NPTF, Hot Spot GWTF, and Distal Zone DPTU
NGWTFand DPTU RD, RAWP, and Associcated Docs
NGWTF and DPTU Constuction and Startup
GW Monitoring
GW Monitoring
GW Monitoring
GW Monitoring


Units
FY 06
FY 07
FY 08
FY 09
FY 10
FY 11
FY 12
FY 13
FY 14
FY 15
FY 16
FY 17
FY 18
FY 19
FY 20
FY 21
FY 22
FY 23
FY 24
FY 25
FY 26
FY 27
FY 28
FY 29
FY 30
Alternative 1: NGWTF,
5 Year Review
5 Year Review
5 Year Review
5 Year Review
5 Year Review
Operate Medial Zone NPTF, Hot Spot GWTF, and Distal Zone DPTU
GW Monitoring
Groundwater Monitoring every other year (Odd Years) through 2030
NGWTF, NPTF, and DPTU D&D

Bechtel BWXT Idaho, LLC

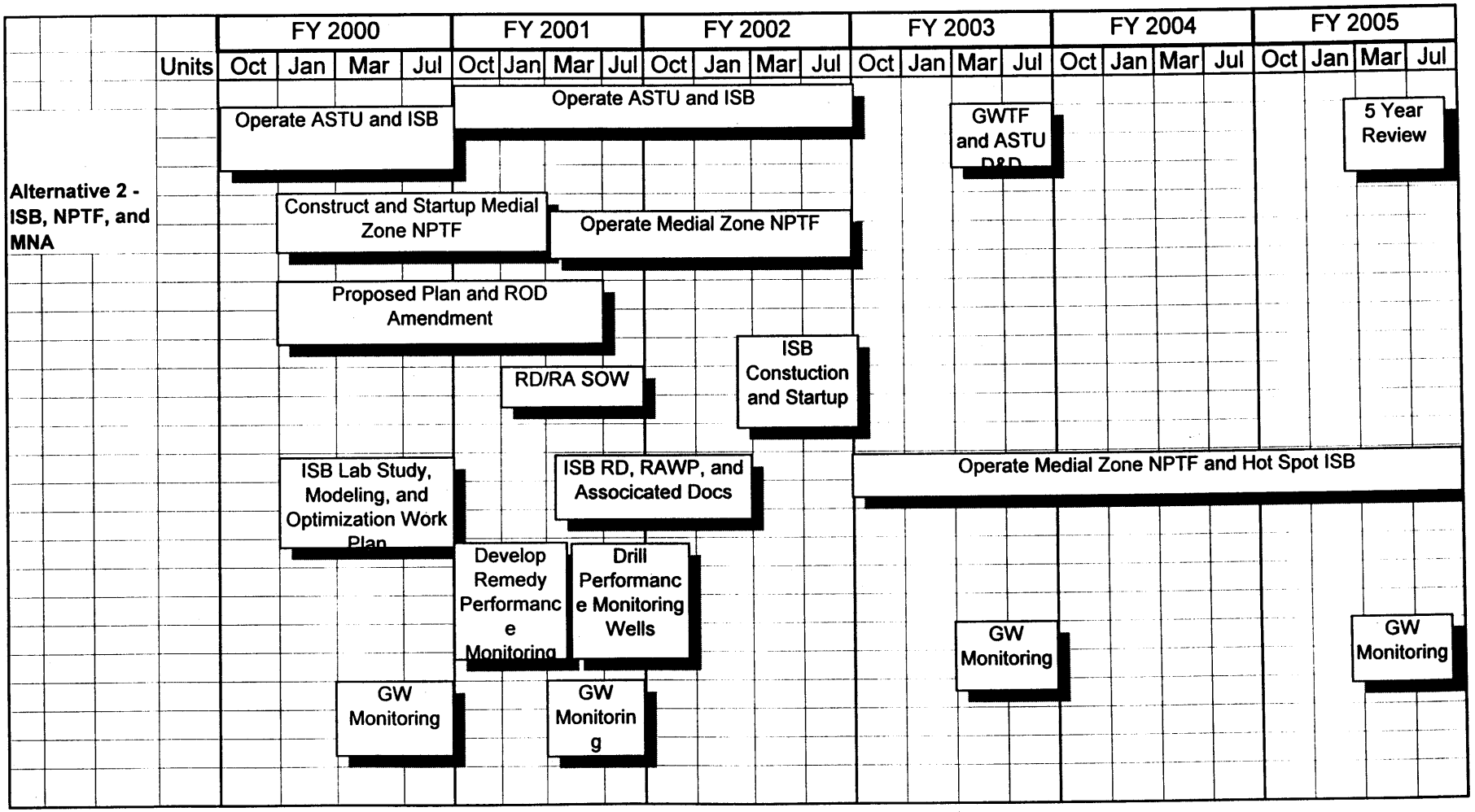
COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title:	OU 1-07B ROD Amendment Alternatives
Estimator:	J. D. Folker
Date:	August 21, 2000
Estimate Type:	Planning
File:	6223-AD
Approved By:	

Appendix B

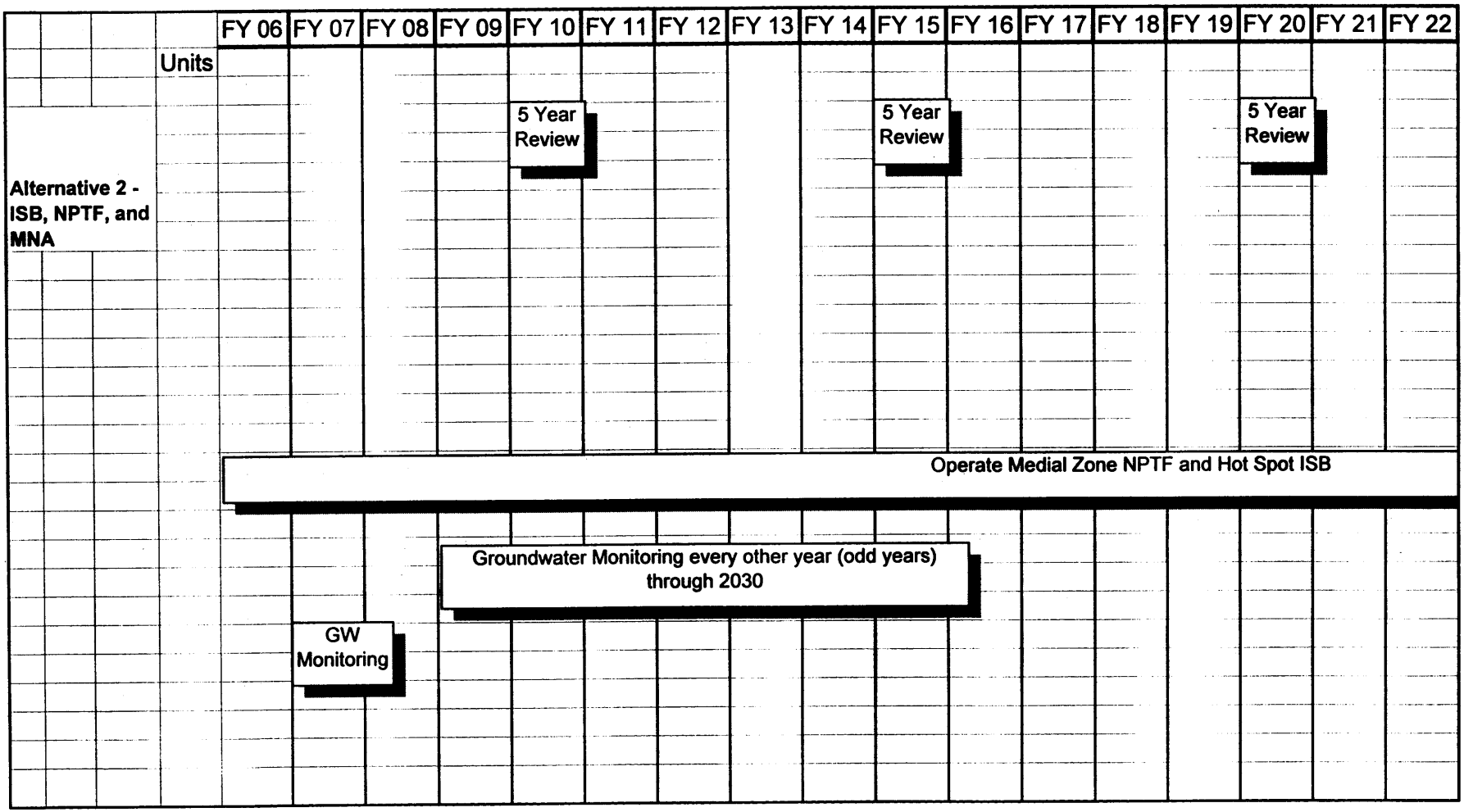
Alternative 2 Schedule: In Situ Bioremediation, New Pump and Treat Facility, and Monitored Natural Attenuation

Alternative 2 PM



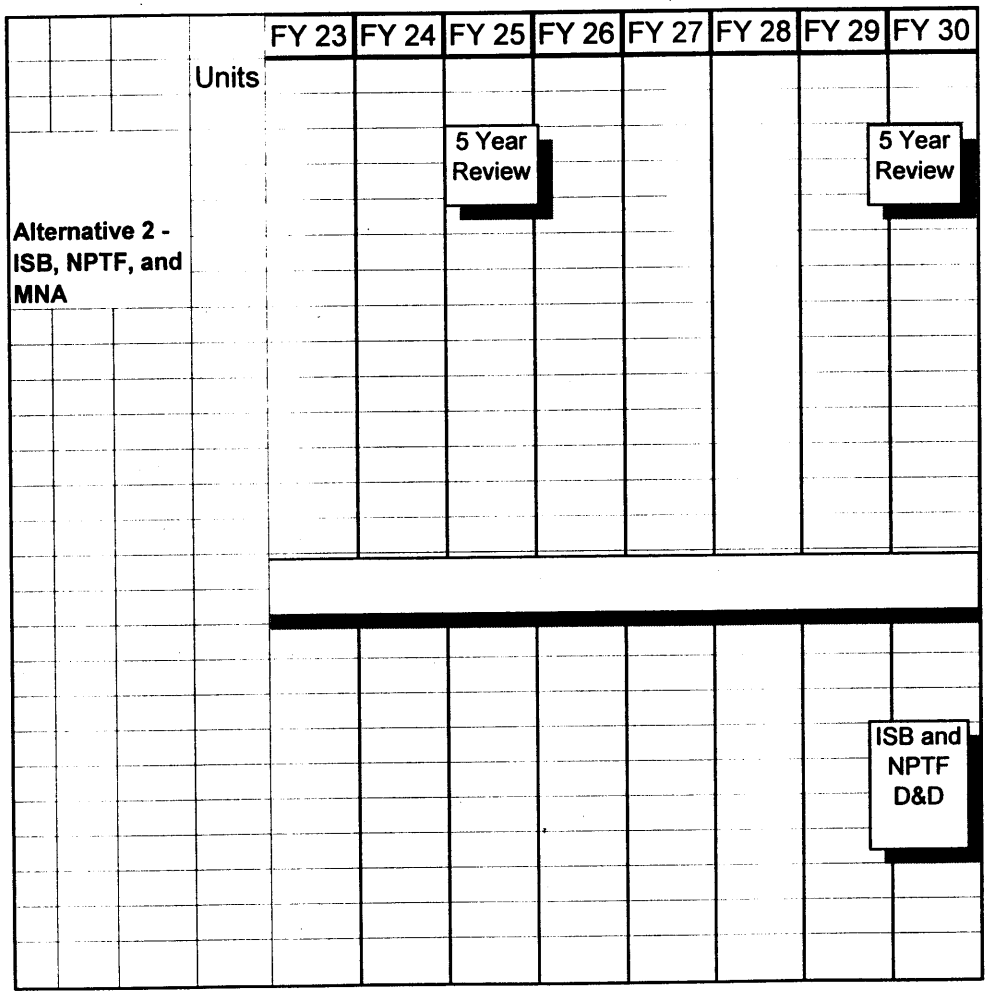
9/6/00

Alternative 2 PM



9/6/00

Alternative 2 PM



Bechtel BWXT Idaho, LLC

COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title:	OU 1-07B ROD Amendment Alternatives
Estimator:	J. D. Folker
Date:	August 21, 2000
Estimate Type:	Planning
File:	6223-AD
Approved By:	

Appendix C

Alternative 1 & 2 Life Cycle Cost Analysis

7%

LIFE CYCLE COST ANALYSIS

Year	Escalation	Discount Rate	YEAR	WAG 1/OU 1-07B ROD Amendment Alternate 1 Capital Costs			WAG 1/OU 1-07B ROD Amendment Alternate 1 Operating Costs		
				CURRENT 1999 DOLLARS	NON-ESCALATED* DOLLARS	NET PRESENT VALUE @ 7%	CURRENT 1999 DOLLARS	NON-ESCALATED* DOLLARS	NET PRESENT VALUE @ 7%
0	1	1	1999	1,769,000	$1,769,000	$1,769,000	17,071,000	$17,071,000	$17,071,000
1	1	0.934579439	2000	1,913,000	$1,913,000	$1,787,850	5,023,600	$5,023,600	$4,694,953
2	1	0.873438728	2001		$0	$0	2,308,290	$2,308,290	$2,016,150
3	1	0.816297877	2002		$0	$0	1,327,890	$1,327,890	$1,083,954
4	1	0.762895212	2003	237,148	$237,148	$180,919	3,660,007	$3,660,007	$2,792,202
5	1	0.712986179	2004	229,173	$229,173	$163,397	715,290	$715,290	$509,992
6	1	0.666342224	2005	1,055,386	$1,055,386	$703,249	645,500	$645,500	$430,124
7	1	0.622749742	2006	2,096,683	$2,096,683	$1,305,709	621,290	$621,290	$386,908
8	1	0.582009105	2007		$0	$0	530,800	$530,800	$308,930
9	1	0.543933743	2008		$0	$0	544,790	$544,790	$296,330
10	1	0.508349292	2009		$0	$0	539,400	$539,400	$274,204
11	1	0.475092796	2010		$0	$0	637,790	$637,790	$303,009
12	1	0.444011959	2011		$0	$0	557,500	$557,500	$247,537
13	1	0.414964448	2012		$0	$0	544,790	$544,790	$226,068
14	1	0.387817241	2013		$0	$0	539,400	$539,400	$209,189
15	1	0.36244602	2014		$0	$0	594,590	$594,590	$215,507
16	1	0.338734598	2015		$0	$0	574,000	$574,000	$194,434
17	1	0.31657439	2016		$0	$0	571,490	$571,490	$180,919
18	1	0.295863916	2017		$0	$0	539,400	$539,400	$159,589
19	1	0.276508333	2018		$0	$0	1,036,859	$1,036,859	$286,700
20	1	0.258419003	2019		$0	$0	530,800	$530,800	$137,169
21	1	0.241513087	2020		$0	$0	587,990	$587,990	$142,007
22	1	0.225713165	2021		$0	$0	566,100	$566,100	$127,776
23	1	0.210946883	2022		$0	$0	594,590	$594,590	$125,427
24	1	0.19714662	2023		$0	$0	530,800	$530,800	$104,645
25	1	0.184249178	2024		$0	$0	544,790	$544,790	$100,377
26	1	0.172195493	2025		$0	$0	582,600	$582,600	$100,321
27	1	0.160930367	2026		$0	$0	621,290	$621,290	$99,984
28	1	0.150402212	2027		$0	$0	222,900	$222,900	$33,525
29	1	0.140562815	2028		$0	$0	236,890	$236,890	$33,298
30	1	0.131367117	2029		$0	$0	231,500	$231,500	$30,411
31	1	0.122773007	2030		$0	$0	329,890	$329,890	$40,502
32	1	0.114741128	2031		$0	$0	2,863,186	$2,863,186	$328,525
33	1	0.107234699	2032		$0	$0		$0	$0
34	1.03	0.100219345	2033		$0	$0		$0	$0
35	1.0609	0.093662939	2034		$0	$0		$0	$0
36	1.092727	0.087535457	2035		$0	$0		$0	$0
37	1.125509	0.081808838	2036		$0	$0		$0	$0
38	1.159274	0.076456858	2037		$0	$0		$0	$0
39	1.194052	0.071455008	2038		$0	$0		$0	$0
40	1.229874	0.066780381	2039		$0	$0		$0	$0
			SUBTOTALS	$7,300,390	$7,300,390	$5,910,124	$47,027,002	$47,027,002	$33,291,666
		($18,562,000)	TPC	54,327,392	54,327,392	39,201,790			

*The NPV calculations use an overall discount rate of 7%.

* Totals for 1999 represent Actuals from FY95 to FY99

09/06/00

Life Cycle Cost Analysis

Year	Escalation	7% Discount Rate	YEAR	WAG 1/OU 1-07B ROD Amendment Alternate 2 Capital Costs			WAG 1/OU 1-07B ROD Amendment Alternate 2 Operating Costs		
				CURRENT 1999 DOLLARS	ESCALATED* DOLLARS	NET PRESENT VALUE @ 7%	CURRENT 1999 DOLLARS	ESCALATED* DOLLARS	NET PRESENT VALUE @ 7%
0	1	1	1999	$1,769,000	$1,769,000	$1,769,000	$17,071,000	$17,071,000	$17,071,000
1	1	0.934579439	2000	$1,913,000	$1,913,000	$1,787,850	$3,600,600	$3,600,600	$3,365,047
2	1	0.873438728	2001	$132,206	$132,206	$115,474	$1,390,390	$1,390,390	$1,214,420
3	1	0.816297877	2002	$95,285	$95,285	$77,781	$1,019,990	$1,019,990	$832,616
4	1	0.762895212	2003		$0	$0	$3,352,107	$3,352,107	$2,557,306
5	1	0.712986179	2004		$0	$0	$715,290	$715,290	$509,992
6	1	0.666342224	2005		$0	$0	$645,500	$645,500	$430,124
7	1	0.622749742	2006		$0	$0	$621,290	$621,290	$386,908
8	1	0.582009105	2007		$0	$0	$530,800	$530,800	$308,930
9	1	0.543933743	2008		$0	$0	$544,790	$544,790	$296,330
10	1	0.508349292	2009		$0	$0	$539,400	$539,400	$274,204
11	1	0.475092796	2010		$0	$0	$637,790	$637,790	$303,009
12	1	0.444011959	2011		$0	$0	$557,500	$557,500	$247,537
13	1	0.414964448	2012		$0	$0	$544,790	$544,790	$226,068
14	1	0.387817241	2013		$0	$0	$539,400	$539,400	$209,189
15	1	0.36244602	2014		$0	$0	$594,590	$594,590	$215,507
16	1	0.338734598	2015		$0	$0	$574,000	$574,000	$194,434
17	1	0.31657439	2016		$0	$0	$571,490	$571,490	$180,919
18	1	0.295863916	2017		$0	$0	$539,400	$539,400	$159,589
19	1	0.276508333	2018		$0	$0	$1,036,859	$1,036,859	$286,700
20	1	0.258419003	2019		$0	$0	$530,800	$530,800	$137,169
21	1	0.241513087	2020		$0	$0	$587,990	$587,990	$142,007
22	1	0.225713165	2021		$0	$0	$566,100	$566,100	$127,776
23	1	0.210946883	2022		$0	$0	$594,590	$594,590	$125,427
24	1	0.19714662	2023		$0	$0	$530,800	$530,800	$104,645
25	1	0.184249178	2024		$0	$0	$544,790	$544,790	$100,377
26	1	0.172195493	2025		$0	$0	$582,600	$582,600	$100,321
27	1	0.160930367	2026		$0	$0	$621,290	$621,290	$99,984
28	1	0.150402212	2027		$0	$0	$222,900	$222,900	$33,525
29	1	0.140562815	2028		$0	$0	$236,890	$236,890	$33,298
30	1	0.131367117	2029		$0	$0	$231,500	$231,500	$30,411
31	1	0.122773007	2030		$0	$0	$329,890	$329,890	$40,502
32	1	0.114741128	2031		$0	$0	$1,419,172	$1,419,172	$162,837
			SUBTOTALS	$3,909,491	$3,909,491	$3,750,105	$42,626,288	$42,626,288	$30,508,109
			TPC	46,535,779	46,535,779	34,258,214			

*The NPV calculations use an overall discount rate of 7%.

* Totals for 1999 represent Actuals from FY95 to FY99

09/06/00

Bechtel BWXT Idaho, LLC

COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title:	OU 1-07B ROD Amendment Alternatives
Estimator:	J. D. Folker
Date:	August 21, 2000
Estimate Type:	Planning
File:	6223-AD
Approved By:	

Appendix D

Alternative 1 & 2 Detailed Cost Summary Analysis

Bechtel BWXT Idaho, LLC

Rev 10-96

Page 1 of 19

SUMMARY SHEET

Project	WAG 1/OU 1-07 B/ROD Amendment Alternatives	Type of Est.	Planning	File No.	6223-AD	Date	09/06/00
	Alternative 1 & 2			File Name		Prep'd By	J. D. Folker
Location	Test Area North - INEEL						G. D. Mecham
Requester	J. S. Rothermel						

ACCT. NO.	DESCRIPTION	ALTERNATIVE # 1 NGWTF, NPTF and DPTUs	ALTERNATIVE # 2 ISB, NPTF and MNA		
	TOTAL CAPITAL COST	$ 7,300,390	3,909,491		
	TOTAL CAPITAL COST IN FY99 DOLLARS	$ 7,300,390	3,909,491		
	TOTAL CAPITAL COST IN ESCALATED DOLLARS	$ 7,300,390	3,909,491		
	TOTAL CAPITAL COST IN NET PRESENT VALUE	$ 5,910,124	3,750,105		
	TOTAL OPERATIONS (100 YEARS)	$ 47,027,002	42,626,288		
	TOTAL OPERATIONS COST IN FY99 DOLLARS	$ 47,027,002	42,626,288		
	TOTAL OPERATIONS COST IN ESCAL. DOLLARS	$ 47,027,002	42,626,588		
	TOTAL OPERATIONS COST IN NPV	$ 33,291,666	30,508,109		
	TOTAL PROJECT COST IN FY99 DOLLARS	$ 54,327,392	46,535,779		
	TOTAL PROJECT COST IN ESCALATED DOLLARS	$ 54,327,392	46,536,079		
	TOTAL PROJECT COST IN NET PRESENT VALUE	$ 39,201,790	34,258,214		

Bechtel BWXT Idaho, LLC

Rev 10-96

Page 2 of 19

SUMMARY OF DETAILED COST ESTIMATE

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives
Alternative 1 & 2

Location Test Area North - INEEL

Requester J. S. Rothermel

Type of Est. Planning

Source (E) Eng. Est.
(V) Vendor
(P) Pur. Order

File No. 6223-AD

File Name 0

Date 09/06/00

Prep'd By J. D. Folker

ACCT. NO.	DESCRIPTION		ALTERNATIVE # 1 NGWTF, NPTF and DPTUs		ALTERNATIVE # 2 ISB, NPTF and MNA			
1.1	**FFA/CO Management and Oversight**			9,080,400		9,080,400		
1.1.1	RD/RA SOW			443,000		443,000		
1.1.2	Project Management			8,637,400		8,637,400		
1.1.3	ROD Amendment and RD/RA SOW							
1.2	**Treatability Studies**			12,768,000		10,735,000		
1.2.1	Treatability Studies - Pump and Treat			12,768,000				
1.2.1	Treatability Studies - Pump and Treat					10,735,000		
1.3	**Remedial Design**			935,321		601,206		
1.3.1	Phase C RAWP and NPTF Design			469000		469,000		
1.3.2	NGWTF Design			115,357				
1.3.2	ISB Design					10,415		
1.3.3	Phase C RAWP and Supporting Documents			121,791		121,791		
1.3.4	DPTU Design			229,173				
1.4	**Remedial Action Construction**			6,365,069		3,308,285		
1.4.1	NPTF Extraction Wells			1,300,000		1,300,000		
1.4.2	NPTF Construction			1,913,000		1,913,000		
1.4.3	NGWTF Construction			1,055,386				
1.4.3	ISB Construction					95,285		
1.4.4	Remedy Performance Monitoring Wells			0		0		
1.4.5	DPTU Construction			2,096,683				
	TOTAL CAPITAL COST (1.3 & 1.4)			7,300,390		3,909,491		
2.1	**Remedial Action - Operations (31 Year Duration)**			13,991,100		13,067,400		
2.1.1	Phase B Hot Spot Containment Operations			5,985,700		5,985,700		
2.1.2	Phase C Operations			8,005,400		7,081,700		
2.2	**Surveillance and Monitoring**			5,486,140		5,486,140		
2.2.1	Groundwater Monitoring			5,486,140		5,486,140		
2.2.2	Remedy Performance Monitoring							
2.3	**Decontamination and Dismantlement**			5,701,362		4,257,348		
2.3.1	GWTF D&D			1,291,087		1,291,087		
2.3.2	ASTU D&D			1,104,820		1,104,820		
2.3.3	NGWTF D&D			1,415,261				
2.3.3	ISB D&D					258,772		
2.3.4	NPTF D&D			442,269		442,269		
2.3.5	Well Abandonement			1,160,400		1,160,400		
2.3.6	DPTU D&D			287,525				
	TOTAL OPERATIONS (includes total of 31 YEARS)	0	0	47,027,002		42,626,288		
	TOTAL PROJECT COSTS (TPC)			$ 54,327,392		46,535,779		

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 1

NGWTF, NPTF, and DPTUs

Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
1.1	**Alternative 1 FFA/CO Management and Oversight**										
1.1.1	**Pre-ROD Review and Scoping**		1 ls	443000					443000		**443,000**
1.1.2	**Project Management**										
	General Project Management-(FY 1995-1999) 5 Year Duration		5 yr	578400					2892000		**2,892,000**
	General Project Management-(2000-2003) 4 Year Duration										
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	WAG 1 Project Engineer		0.1 fte		2,080	208	65	13,520	0		13,520
	Project Manager		1.0 fte		2,080	2,080	75	156,000	0		156,000
	RD/RA Manager		1.0 fte		2,080	2,080	75	156,000	0		156,000
	Project Engineer		0.10 fte		2,080	208	65	13,520	0		13,520
	Project Controls Engineer		1.0 fte		2,080	2,080	55	114,400	0		114,400
	Admin Support		0.2 fte		2,080	416	45	18,720	0		18,720
	Total Cost (Per Year)										503,360
	Total Cost (Per Year Rounded)										**503,400**
	General Project Management-(FY 2000-2003) 4 Year Duration		4 yr	503,400		0		0	2,013,600		**2,013,600**
	General Project Management-(2004) 1 Year Duration										
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	WAG 1 Project Engineer		0.1 fte		2,080	208	65	13,520	0		13,520
	Project Manager		0.5 fte		2,080	1,040	75	78,000	0		78,000
	RD/RA Manager		0.5 fte		2,080	1,040	75	78,000	0		78,000
	Project Engineer		0.00 fte		2,080	0	65	0	0		0
	Project Controls Engineer		0.5 fte		2,080	1,040	55	57,200	0		57,200
	Admin Support		0.2 fte		2,080	416	45	18,720	0		18,720
	Total Cost (Per Year)										276,640
	Total Cost (Per Year Rounded)					0		0	0		**276,600**
	General Project Management-(FY 2004) 1 Year Duration		1 yr	276,600		0		0	276,600		**276,600**
	General Project Management-(2005) 1 Year Duration										
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	WAG 1 Project Engineer		0.2 fte		2,080	416	65	27,040	0		27,040
	Project Manager		0.4 fte		2,080	832	75	62,400	0		62,400
	RD/RA Manager		fte		2,080	0	75	0	0		0
	Project Engineer		fte		2,080	0	65	0	0		0
	Project Controls Engineer		0.2 fte		2,080	416	55	22,880	0		22,880
	Admin Support		0.2 fte		2,080	416	45	18,720	0		18,720
	Total Cost (Per Year)										162,240
	Total Cost (Per Year Rounded)					0		0	0		**162,200**
	General Project Management-(FY 2005) 1 Year Duration		1 yr	162,200		0		0	162,200		**162,200**

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 1

NGWTF, NPTF, and DPTUs

Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	General Project Management-(2006-09, 11-14, 16-19, 21-24, 26-29) 20 Year Durat										
	WAG 1 PBS Manager		0.15 fte		2,080	312	75	23,400	0		23,400
	WAG 1 Project Engineer		0.15 fte		2,080	312	65	20,280	0		20,280
	Project Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	RD/RA Manager		fte		2,080	0	75	0	0		0
	Project Engineer		fte		2,080	0	65	0	0		0
	Project Controls Engineer		0.15 fte		2,080	312	55	17,160	0		17,160
	Admin Support		0.15 fte		2,080	312	45	14,040	0		14,040
	Total Cost (Per Year)										106,080
	Total Cost (Per Year Rounded)					0		0	0		106,100
	General Project Management-(2006-09, 11-14, 16-19, 21-24, 26-29) 20 Year Duration		20 yr	106,100		0		0	2,122,000		2,122,000
	General Project Management-(2010, 15, 20, 25, 30) 5 Year Duration										
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	WAG 1 Project Engineer		0.2 fte		2,080	312	65	20,280	0		20,280
	Project Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	RD/RA Manager		fte		2,080	0	75	0	0		0
	Project Engineer		fte		2,080	0	65	0	0		0
	Project Controls Engineer		0.20 fte		2,080	416	55	22,880	0		22,880
	Admin Support		0.20 fte		2,080	416	45	18,720	0		18,720
	Total Cost (Per Year)										124,280
	Total Cost (Per Year Rounded)					0		0	0		124,300
	General Project Management-(2010, 15, 20, 25, 30) 5 Year Duration		5 yr	124,300		0		0	621,500		621,500
	Detailed Work Package Update-(FY 2000-2003) 4 Year Duration										
	Cost Estimator		0.08 fte		2080	160	65	10,400			10,400
	Admin Support		0.02 fte		2080	40	45	1,800			1,800
	Project Controls Support		0.08 fte		2080	160	50	8,000			8,000
	Computer Upgrade		2.0 ea	7000					14,000		14,000
	Travel for Agency Meetings		4.0 ea	2000					8,000		8,000
	Total Cost (Per Year)										42,200
	Total Cost (Per Year Rounded)					0		0	0		42,200
	Detailed Work Package Update-(FY 2000-2003) 4 Year Duration		4 yr	42,200		0		0	168,800		168,800
	Detailed Work Package Update-(FY 2004-2030) 27 Year Duration										
	Cost Estimator		0.02 fte		2080	40	65	2,600			2,600
	Admin Support		0.005 fte		2080	10	45	450			450
	Project Controls Support		0.02 fte		2080	40	50	2,000			2,000
	Computer Upgrade		1.0 ea	7000					7,000		7,000
	Travel for Agency Meetings		1.0 ea	2000					2,000		2,000
	Total Cost (Per Year)										14,050
	Total Cost (Per Year Rounded)					0		0	0		14,100
	Detailed Work Package Update-(FY 2004-2030) 27 Year Duration		27 yr	14,100					380,700		380,700
1.1.2	**Project Management-FY 1995-2004 (Capital Costs)**										8,637,400

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 1

NGWTF, NPTF, and DPTUs

Type of Est. Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
1.2	**Treatability Studies**										
1.2.1	**Treatability Studies- Pump and Treat**										
	Treatability Studies- Pump and Treat(Thru FY 99)		1 ls	8002000					8002000		8,002,000
	ISB Technical Integration Activities (FY 00)		1 ls	80000					80000		80,000
	ISB Preparation of Field Evaluation Final report (FY 00)		1 ls	46000					46000		46,000
	ISCO Technical Integration Activities (FY 00)		1 ls	225000					225000		225,000
	ISCO Field Evaluation (FY 00)		1 ls	1980000					1980000		1,980,000
	ISCO Field Evaluation (FY 01)		1 ls	91000					91000		91,000
	ISCO Field Evaluation Report (FY 00)		1 ls	75000					75000		75,000
	ISCO Field Evaluation Report (FY 01)		1 ls	17000					17000		17,000
	MNA Technical Integration Activities (FY 00)		1 ls	81000					81000		81,000
	MNA Vertical Profile Sampling (FY 00)		1 ls	266000					266000		266,000
	MNA Vertical Profile Sampling (FY 01)		1 ls	150000					150000		150,000
	MNA Data Analysis and Site Conceptual Model Update (FY 00)		1 ls	78000					78000		78,000
	MNA Monitoring Wells (FY 00)		1 ls	738000					738000		738,000
	MNA Monitoring Wells (FY 01)		1 ls	79000					79000		79,000
	MNA Modeling (FY 00)		1 ls	85000					85000		85,000
	Field Demonstration Report # 1 (FY 00)		1 ls	173000					173000		173,000
	Field Demonstration Report # 2 (FY 01)		1 ls	602000					602000		602,000
	Total Treatability Studies (FY99)										8,002,000
	Total Treatability Studies (FY00)										3,827,000
	Total Treatability Studies (FY01)										939,000
1.2.1	**Sub Total Treatability Studies**										**12,768,000**
1.3	**Remedial Design**										
1.3.1	**Phase C Remedial Action Workplan and NPTF Design**		1 ls	469000					469000		**469,000**
1.3.2	**NGWTF Design**		1 ls						0		**0**
	30% NGWTF Design		1 ls	56229.341					56229.341		56,229
	30% NGWTF Design Comment Resolution and Incorporation		1 ls	6055.9243					6055.9243		6,056
	90% NGWTF Design		1 ls	53071.26					53071.26		53,071
1.3.2	**Sub Total NGWTF Design**										**115,357**
1.3.3	**Phase C Remedial Action Workplan and Supporting Documents**										
	Prepare DPTU RD/RA Workplan		1 ls	105434					105434		105,434
	DPTU RD/RA WP Final Comment Resolution and Incorporation		1 ls	16357					16357		16,357
1.3.3	**Sub Total Phase C Remedial Action WP and Supporting Doc's**										**121,791**
1.3.4	**DPTU Design**										
	30% DPTU Design		1 ls	111708					111708		111,708
	30% DPTU Design Comment Resolution and Incorporation		1 ls	12031					12031		12,031
	90% DPTU Design		1 ls	105434					105434		105,434
1.3.4	**Sub Total DPTU Design**										**229,173**
1.4	**Remedial Action Construction**										
1.4.1	**NPTF Extraction Wells**		1 ls	1300000					1300000		**1,300,000**
1.4.2	**NPTF Construction FY 00 and 01**		1 ls	1913000					1913000		**1,913,000**
1.4.3	**NGWTF Construction**										
	NGWTF RFP, Bid and Award		1 ls	19877.687					19877.687		19,878

	Construct NGWTF		1 ls	1019000					1019000		1,019,000
	Perform Pre-Final Inspection and Prepare Report		1 ls	4022.8532					4022.8532		4,023
	Prepare NGWTF Draft Final Inspection Report		1 ls	12485.845					12485.845		12,486
1.4.3	Sub Total NGWTF Construction										1,055,386
1.4.4	Remedy Performance Monitoring Wells										
1.4.5	DPTU Construction										
	DPTU RFP, Bid and Award		1 ls	39490					39490		39,490
	Construct DPTU		1 ls	2024396					2024396		2,024,396
	Perform Pre-Final Inspection and Prepare Report		1 ls	7992					7992		7,992
	Prepare DPTU Draft Final Inspection Report		1 ls	24805					24805		24,805
1.4.5	Sub Total DPTU Construction										2,096,683

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 1

NGWTF, NPTF, and DPTUs

Type of Est. Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.1	**Alternative 1 Remedial Action Operations**										
2.1.1	**GWTF Operations Transition to 1-07B**		1 ls	2466000					2466000		**2,466,000**
2.1.1	**Sludge treatment and Disposal**		1 ls	10000					10000		**10,000**
2.1.1	**Phase B Hot Spot Containment Operations**										
	Facility Operations-(FY 1995-1999) 5 Year Duration		5 yr	452400					2262000		**2,262,000**
	Facility Operations-(FY 2000) 1 Year Duration		1 yr	324000					324000		**324,000**
	Facility Operations-(FY 2001-2003) 3 Year Duration										
	Hot Spot Containment Facility Operations (Labor)										
	Project Engineer		0.10 fte		2,080	208	65	13,520			13,520
	Construction Engineer		0.25 fte		2,080	520	65	33,800			33,800
	Operations Engineer		0.25 fte		2,080	520	65	33,800			33,800
	Mechanical Engineer		0.10 fte		2,080	208	75	15,600			15,600
	Rad Con Tech		0.05 fte		2,080	104	45	4,680			4,680
	Industrial Hygiene		0.10 fte		2,080	208	55	11,440			11,440
	Admin Support		0.10 fte		2,080	208	45	9,360			9,360
	Electrician		0.05 fte		2,080	104	55	5,720			5,720
	Pipefitter		0.05 fte		2,080	104	60	6,240			6,240
	Operator		0.06 fte		2,080	125	55	6,864			6,864
	Laborer		0.10 fte		2,080	208	45	9,360			9,360
	Sampler		0.05 fte		2,080	104	65	6,760			6,760
	ECL Chemist (Air Analysis)		0.05 fte		2,080	104	65	6,760			6,760
	SMO Chemist		0.10 fte		2,080	208	65	13,520			13,520
	SMO Support		0.10 fte		2,080	208	65	13,520			13,520
	Sub Total- Labor Facility Operations										**190,944**
	Hot Spot Containment Waste Management (Labor)										
	Waste Specialist		0.15 fte		2,080	312	45	14,040			14,040
	Admin Support		0.05 fte		2,080	104	45	4,680			4,680
	Rad Con Tech		0.10 fte		2,080	208	45	9,360			9,360
	Laborer		0.10 fte		2,080	208	45	9,360			9,360
	Operator		0.05 fte		2,080	104	55	5,720			5,720
	Driver		0.05 fte		2,080	104	55	5,720			5,720
	Safety Engineer		0.08 fte		2,080	166	55	9,152			9,152
	Sub Total- Labor Waste Management										**58,032**
	Sub Total- Subcontract (Lab analysis)		100 ea	150						15000	**15,000**
	Hot Spot Containment Facility Operations (Material)										
	Water Blind Samples		24 ea	150					3600		3,600
	Air Blind Samples		24 ea	200					4800		4,800
	Misc Supplies		12 ea	1000					12000		12,000
	Misc Air Stripper Maint & Repair		1 lot	10000					10000		10,000
	Air Freight		5 ea	60					300		300
	Printing		1500 ea	0.1					150		150
	Vehicle		360 day	15					5400		5,400
	Heating, Air Stripper		36900 kw	0.035					1291.5		1,292
	Misc Power, Lighting		12000 kw	0.035					420		420
	Air Stripper, Fan & TAN 29		97000 lot	0.035					3395		3,395
	Sub Total Hot Spot Containment Facility Operations (Material)										**41,357**
	Hot Spot Containment Waste Management (Material)										
	Drums		12 ea	65.000					780		780

	Boxes		12 ea	150.000					1800		1,800
	Sub Total Hot Spot Containment Waste Management (Material)										**2,580**
	Total Cost (Per Year)										**307,913**
	Total Cost (Per Year Rounded)					**0**		**0**	**0**		**307,900**
	Facility Operations & Waste Mgmt(FY 2001-2003) 3 Year Duration		3 yr	307,900					923,700		**923,700**

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives
ALTERNATIVE 1
NGWTF, NPTF, and DPTUs

Type of Est. Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.1	**Alternative 1 Remedial Action Operations**										
2.1.2	**Phase C Operations**										
	NPTF Operations-(FY 2001-2003) 3 Year Duration										
	NPTF Operations (Labor)										
	Project Engineer		0.10 fte		2,080	208	65	13,520			13,520
	Construction Engineer		0.25 fte		2,080	520	65	33,800			33,800
	Operations Engineer		0.25 fte		2,080	520	65	33,800			33,800
	Mechanical Engineer		0.10 fte		2,080	208	75	15,600			15,600
	Rad Con Tech		0.05 fte		2,080	104	45	4,680			4,680
	Industrial Hygiene		0.10 fte		2,080	208	55	11,440			11,440
	Admin Support		0.10 fte		2,080	208	45	9,360			9,360
	Electrician		0.05 fte		2,080	104	55	5,720			5,720
	Pipefitter		0.05 fte		2,080	104	60	6,240			6,240
	Operator		0.06 fte		2,080	125	55	6,864			6,864
	Laborer		0.10 fte		2,080	208	45	9,360			9,360
	Sampler		0.05 fte		2,080	104	65	6,760			6,760
	ECL Chemist (Air Analysis)		0.05 fte		2,080	104	65	6,760			6,760
	SMO Chemist		0.10 fte		2,080	208	65	13,520			13,520
	SMO Support		0.10 fte		2,080	208	65	13,520			13,520
	Sub Total- Labor NPTF Operations										**190,944**
	NPTF Waste Management (Labor)										
	Waste Specialist		0.15 fte		2,080	312	45	14,040			14,040
	Admin Support		0.05 fte		2,080	104	45	4,680			4,680
	Rad Con Tech		0.10 fte		2,080	208	45	9,360			9,360
	Laborer		0.10 fte		2,080	208	45	9,360			9,360
	Operator		0.05 fte		2,080	104	55	5,720			5,720
	Driver		0.05 fte		2,080	104	55	5,720			5,720
	Safety Engineer		0.08 fte		2,080	166	55	9,152			9,152
	Sub Total- Labor NPTF Waste Management										**58,032**
	Sub Total- Subcontract (Lab analysis)		100 ea	150						15000	**15,000**
	NPTF Operations (Material)										
	Water Blind Samples		24 ea	150					3600		3,600
	Air Blind Samples		24 ea	200					4800		4,800
	Misc Supplies		12 ea	1000					12000		12,000
	Misc Air Stripper Maint & Repair		1 lot	10000					10000		10,000
	Air Freight		5 ea	60					300		300
	Printing		1500 ea	0.1					150		150
	Vehicle		360 day	15					5400		5,400
	Heating, Air Stripper		36900 kw	0.035					1291.5		1,292
	Misc Power, Lighting		12000 kw	0.035					420		420
	Air Stripper, Fan & TAN 29		97000 lot	0.035					3395		3,395
	Sub Total NPTF Operations (Material)										**41,357**
	NPTF Waste Management (Material)										
	Drums		12 ea	65.000					780		780
	Boxes		12 ea	150.000					1800		1,800
	Sub Total NPTF Waste Management (Material)										**2,580**
	Total Cost (Per Year)										**307,913**
	Total Cost (Per Year Rounded)					**0**		**0**	0		**307,900**
	NPTF Operations & Waste Mgmt(FY 2001-2003) 3 Year Duration		3 yr	307,900					923,700		**923,700**

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives
ALTERNATIVE 1
NGWTF, NPTF, and DPTUs

Type of Est. Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.1	**Alternative 1 Remedial Action Operations**										
2.1.2	**Phase C Operations**										
	NPTF/NGWTF/DPTU Operations-(FY 2004-2026) 23 Year Duration										
	NPTF/NGWTF/DPTU Operations (Labor)										
	Project Engineer		0.10 fte		2,080	208	65	13,520			13,520
	Construction Engineer		0.25 fte		2,080	520	65	33,800			33,800
	Operations Engineer		0.25 fte		2,080	520	65	33,800			33,800
	Mechanical Engineer		0.10 fte		2,080	208	75	15,600			15,600
	Rad Con Tech		0.05 fte		2,080	104	45	4,680			4,680
	Industrial Hygiene		0.10 fte		2,080	208	55	11,440			11,440
	Admin Support		0.10 fte		2,080	208	45	9,360			9,360
	Electrician		0.05 fte		2,080	104	55	5,720			5,720
	Pipefitter		0.05 fte		2,080	104	60	6,240			6,240
	Operator		0.06 fte		2,080	125	55	6,864			6,864
	Laborer		0.10 fte		2,080	208	45	9,360			9,360
	Sampler		0.05 fte		2,080	104	65	6,760			6,760
	ECL Chemist (Air Analysis)		0.05 fte		2,080	104	65	6,760			6,760
	SMO Chemist		0.10 fte		2,080	208	65	13,520			13,520
	SMO Support		0.10 fte		2,080	208	65	13,520			13,520
	Sub Total- Labor NPTF/NGWTF/DPTU Operations										**190,944**
	NPTF/NGWTF/DPTU Waste Management (Labor)										
	Waste Specialist		0.15 fte		2,080	312	45	14,040			14,040
	Admin Support		0.05 fte		2,080	104	45	4,680			4,680
	Rad Con Tech		0.10 fte		2,080	208	45	9,360			9,360
	Laborer		0.10 fte		2,080	208	45	9,360			9,360
	Operator		0.05 fte		2,080	104	55	5,720			5,720
	Driver		0.05 fte		2,080	104	55	5,720			5,720
	Safety Engineer		0.08 fte		2,080	166	55	9,152			9,152
	Sub Total- Labor NPTF/NGWTF/DPTU Waste Management										**58,032**
	Sub Total- Subcontract (Lab analysis)		100 ea	150						15000	**15,000**
	NPTF/NGWTF/DPTU Operations (Material)										
	Water Blind Samples		24 ea	150					3600		3,600
	Air Blind Samples		24 ea	200					4800		4,800
	Misc Supplies		12 ea	1000					12000		12,000
	Misc Air Stripper Maint & Repair		1 lot	10000					10000		10,000
	Air Freight		5 ea	60					300		300
	Printing		1500 ea	0.1					150		150
	Vehicle		360 day	15					5400		5,400
	Heating, Air Stripper		36900 kw	0.035					1291.5		1,292
	Misc Power, Lighting		12000 kw	0.035					420		420
	Air Stripper, Fan & TAN 29		97000 lot	0.035					3395		3,395
	Sub Total NPTF/NGWTF/DPTU Operations (Material)										**41,357**
	NPTF/NGWTF/DPTU Waste Management (Material)										
	Drums		12 ea	65.000					780		780
	Boxes		12 ea	150.000					1800		1,800
	Sub Total NPTF/NGWTF/DPTU Waste Management (Material)										**2,580**
	Total Cost (Per Year)										**307,913**
	Total Cost (Per Year Rounded)					**0**		**0**	**0**		**307,900**
	NPTF/NGWTF/DPTU Operations & Waste Mgmt(FY 2004-2026) 23 Year Duration		23 yr	307,900					7,081,700		**7,081,700**

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives
ALTERNATIVE 1
NGWTF, NPTF, and DPTUs

Type of Est. Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.2	**Surveillance and Monitoring**										
2.2.1	**Groundwater Monitoring**										
	Groundwater Monitoring-(FY 1995-1999) 5 Year Duration		5 yr	199200					996000		**996,000**
	Groundwater Monitoring-(FY 2000) 1 Year Duration		1 yr	327000					327000		**327,000**
	Groundwater Monitoring-(FY 2001-2030) 30 Year Duration										
	Routine Sampling Round (FY 2001)		1 yr	207890					207890		207,890
	Analysis and Validation of Prior Year Samples (2002)		1 yr	166490					166490		166,490
	Statistical Sampling Round (2003)		1 yr	102700					102700		102,700
	Analysis and Validation of Prior Year Samples (2004)		1 yr	116690					116690		116,690
	Routine Sampling Round (FY 2005)		1 yr	161300					161300		161,300
	Analysis and Validation of Prior Year Samples (2006)		1 yr	193190					193190		193,190
	Statistical Sampling Round (2007)		1 yr	102700					102700		102,700
	Analysis and Validation of Prior Year Samples (2008)		1 yr	116690					116690		116,690
	Routine Sampling Round (FY 2009)		1 yr	111300					111300		111,300
	Analysis and Validation of Prior Year Samples (2010)		1 yr	191490					191490		191,490
	Statistical Sampling Round (2011)		1 yr	129400					129400		129,400
	Analysis and Validation of Prior Year Samples (2012)		1 yr	116690					116690		116,690
	Routine Sampling Round (FY 2013)		1 yr	111300					111300		111,300
	Analysis and Validation of Prior Year Samples (2014)		1 yr	166490					166490		166,490
	Statistical Sampling Round (2015)		1 yr	127700					127700		127,700
	Analysis and Validation of Prior Year Samples (2016)		1 yr	143390					143390		143,390
	Routine Sampling Round (FY 2017)		1 yr	111300					111300		111,300
	Analysis and Validation of Prior Year Samples (2018)		1 yr	166490					166490		166,490
	Statistical Sampling Round (2019)		1 yr	102700					102700		102,700
	Analysis and Validation of Prior Year Samples (2020)		1 yr	141690					141690		141,690
	Routine Sampling Round (FY 2021)		1 yr	138000					138000		138,000
	Analysis and Validation of Prior Year Samples (2022)		1 yr	166490					166490		166,490
	Statistical Sampling Round (2023)		1 yr	102700					102700		102,700
	Analysis and Validation of Prior Year Samples (2024)		1 yr	116690					116690		116,690
	Routine Sampling Round (FY 2025)		1 yr	136300					136300		136,300
	Analysis and Validation of Prior Year Samples (2026)		1 yr	193190					193190		193,190
	Statistical Sampling Round (2027)		1 yr	102700					102700		102,700
	Analysis and Validation of Prior Year Samples (2028)		1 yr	116690					116690		116,690
	Routine Sampling Round (FY 2029)		1 yr	111300					111300		111,300
	Analysis and Validation of Prior Year Samples (2030)		1 yr	191490					191490		191,490
	Sub Total-Groundwater Monitoring-(FY 2001-2030) 30 Year Duration							0	0		**4,163,140**
								0	0		0

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 1

NGWTF, NPTF, and DPTUs

Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.3	**Decontamination and Dismantlement**										
2.3.1	**GWTF D & D**										
	Characterization		1 ls	417818					417818		417,818
	Project Preparation		1 ls	14700					14700		14,700
	Preparation for Decontamination and Dismantlement		1 ls	10812					10812		10,812
	Facility Project Operations		1 ls	244786					244786		244,786
	Facility Decontamination and Dismantlement		1 ls	306999					306999		306,999
	Disposal and Transportation of Waste		1 ls	16368					16368		16,368
	Project Management and Support		1 ls	271974					271974		271,974
	Post-Decontamination and Dismantlement		1 ls	7630					7630		7,630
2.3.1	**Sub Total GWTF D & D**										**1,291,087**
2.3.2	**ASTU D & D**										
	Characterization		1 ls	231551					231551		231,551
	Project Preparation		1 ls	14700					14700		14,700
	Preparation for Decontamination and Dismantlement		1 ls	10812					10812		10,812
	Facility Project Operations		1 ls	244786					244786		244,786
	Facility Decontamination and Dismantlement		1 ls	306999					306999		306,999
	Disposal and Transportation of Waste		1 ls	16368					16368		16,368
	Project Management and Support		1 ls	271974					271974		271,974
	Post-Decontamination and Dismantlement		1 ls	7630					7630		7,630
2.3.2	**Sub Total ASTU D & D**										**1,104,820**
2.3.3	**NGWTF D & D**										
	Characterization		1 ls	442628					442628		442,628
	Project Preparation		1 ls	14415					14415		14,415
	Preparation for Decontamination and Dismantlement		1 ls	9606					9606		9,606
	Facility Project Operations		1 ls	226091					226091		226,091
	Facility Decontamination and Dismantlement		1 ls	427640					427640		427,640
	Disposal and Transportation of Waste		1 ls	27315					27315		27,315
	Project Management and Support		1 ls	260246					260246		260,246
	Post-Decontamination and Dismantlement		1 ls	7320					7320		7,320
2.3.3	**Sub Total NGWTF D & D**										**1,415,261**
2.3.4	**NPTF D & D**										
	Characterization		1 ls	138321					138321		138,321
	Project Preparation		1 ls	4505					4505		4,505
	Preparation for Decontamination and Dismantlement		1 ls	3002					3002		3,002
	Facility Project Operations		1 ls	70653					70653		70,653
	Facility Decontamination and Dismantlement		1 ls	133637					133637		133,637
	Disposal and Transportation of Waste		1 ls	8536					8536		8,536
	Project Management and Support		1 ls	81327					81327		81,327
	Post-Decontamination and Dismantlement		1 ls	2288					2288		2,288
2.3.4	**Sub Total NPTF D & D**										**442,269**

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives
ALTERNATIVE 1
NGWTF, NPTF, and DPTUs

Type of Est. Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.3.5	**Well Abandonement**										
	Well Abandonement Planning		1 fte	1000	140	140	75	10,500	1000		11,500
	Safety, Job Control, ISMS		1 fte		80	80	75	6,000	0		6,000
	Well Head Preparation and Waste Disposal										
	Equipment Operator		1 fte		600	600	50	30,000	0		30,000
	Laborer		1 fte		600	600	45	27,000	0		27,000
	Waste Generator Services		1 fte		600	600	65	39,000	0		39,000
	Construction Engineer		1 fte		60	60	65	3,900	0		3,900
	Sub Contract Driller				60	0	65	0	0		0
	Mobilization, Demobilization		1 ls	20000					20000		20,000
	Rig Direct Time		1 ls	900000					900000		900,000
	Geologist Support		1 fte		900	900	65	58,500	0		58,500
	Construction Engineer		1 fte		450	450	65	29,250	0		29,250
	Safety, Rad Con, IH		1 fte		300	300	55	16,500	0		16,500
	Project Management		1 fte		250	250	75	18,750	0		18,750
2.3.5	**Sub Total Well Abandonement**										**1,160,400**
2.3.6	**Disolve Phase Treatment Units D & D**										
	Characterization		1 ls	73771					73771		73,771
	Project Preparation		1 ls	2403					2403		2,403
	Preparation for Decontamination and Dismantlement		1 ls	1601					1601		1,601
	Facility Project Operations		1 ls	37682					37682		37,682
	Facility Decontamination and Dismantlement		1 ls	119179					119179		119,179
	Disposal and Transportation of Waste		1 ls	8295					8295		8,295
	Project Management and Support		1 ls	43374					43374		43,374
	Post-Decontamination and Dismantlement		1 ls	1220					1220		1,220
2.3.6	**Sub Total Disolve Phase Treatment Units D & D**										**287,525**

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 2

ISB, NPTF, and MNA

Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
1.1	**Alternative 2 FFA/CO Management and Oversight**										
1.1.1	**Pre-ROD Review and Scoping**		1 ls	443000					443000		**443,000**
1.1.2	**Project Management**										
	General Project Management-(FY 1995-1999) 5 Year Duration		5 yr	578400					2892000		**2,892,000**
	General Project Management-(2000-2003) 4 Year Duration										
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	WAG 1 Project Engineer		0.1 fte		2,080	208	65	13,520	0		13,520
	Project Manager		1.0 fte		2,080	2,080	75	156,000	0		156,000
	RD/RA Manager		1.0 fte		2,080	2,080	75	156,000	0		156,000
	Project Engineer		0.10 fte		2,080	208	65	13,520	0		13,520
	Project Controls Engineer		1.0 fte		2,080	2,080	55	114,400	0		114,400
	Admin Support		0.2 fte		2,080	416	45	18,720	0		18,720
	Total Cost (Per Year)										503,360
	Total Cost (Per Year Rounded)							0	0		**503,400**
	General Project Management-(FY 2000-2003) 4 Year Duration		4 yr	503,400		0		0	2,013,600		**2,013,600**
	General Project Management-(2004) 1 Year Duration							0	0		0
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	WAG 1 Project Engineer		0.1 fte		2,080	208	65	13,520	0		13,520
	Project Manager		0.5 fte		2,080	1,040	75	78,000	0		78,000
	RD/RA Manager		0.5 fte		2,080	1,040	75	78,000	0		78,000
	Project Engineer		fte		2,080	0	65	0	0		0
	Project Controls Engineer		0.5 fte		2,080	1,040	55	57,200	0		57,200
	Admin Support		0.2 fte		2,080	416	45	18,720	0		18,720
	Total Cost (Per Year)										276,640
	Total Cost (Per Year Rounded)					0		0	0		**276,600**
	General Project Management-(FY 2004) 1 Year Duration		1 yr	276,600		0		0	276,600		**276,600**
	General Project Management-(2005) 1 Year Duration							0	0		0
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	WAG 1 Project Engineer		0.2 fte		2,080	416	65	27,040	0		27,040
	Project Manager		0.4 fte		2,080	832	75	62,400	0		62,400
	RD/RA Manager		fte		2,080	0	75	0	0		0
	Project Engineer		fte		2,080	0	65	0	0		0
	Project Controls Engineer		0.2 fte		2,080	416	55	22,880	0		22,880
	Admin Support		0.2 fte		2,080	416	45	18,720	0		18,720
	Total Cost (Per Year)										162,240
	Total Cost (Per Year Rounded)					0		0	0		**162,200**
	General Project Management-(FY 2005) 1 Year Duration		1 yr	162,200		0		0	162,200		**162,200**

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 2

ISB, NPTF, and MNA

Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	General Project Management-(2006-09, 11-14, 16-19, 21-24, 26-29) 20 Year Durat								0		0
	WAG 1 PBS Manager		0.15 fte		2,080	312	75	23,400	0		23,400
	WAG 1 Project Engineer		0.15 fte		2,080	312	65	20,280	0		20,280
	Project Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	RD/RA Manager		fte		2,080	0	75	0	0		0
	Project Engineer		fte		2,080	0	65	0	0		0
	Project Controls Engineer		0.15 fte		2,080	312	55	17,160	0		17,160
	Admin Support		0.15 fte		2,080	312	45	14,040	0		14,040
	Total Cost (Per Year)										106,080
	Total Cost (Per Year Rounded)										106,080
	General Project Management-(2006-09, 11-14, 16-19, 21-24, 26-29) 20 Year Duration		20 yr	106,100		0		0	0		106,100
						0		0	2,122,000		2,122,000
	General Project Management-(2010, 15, 20, 25, 30) 5 Year Duration							0	0		0
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	WAG 1 Project Engineer		0.2 fte		2,080	312	65	20,280	0		20,280
	Project Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	RD/RA Manager		fte		2,080	0	75	0	0		0
	Project Engineer		fte		2,080	0	65	0	0		0
	Project Controls Engineer		0.20 fte		2,080	416	55	22,880	0		22,880
	Admin Support		0.20 fte		2,080	416	45	18,720	0		18,720
	Total Cost (Per Year)										124,280
	Total Cost (Per Year Rounded)										124,280
	General Project Management-(2010, 15, 20, 25, 30) 5 Year Duration		5 yr	124,300		0		0	0		124,300
						0		0	621,500		621,500
	Detailed Work Package Update-(FY 2000-2003) 4 Year Duration										
	Cost Estimator		0.08 fte		2080	160	65	10,400			10,400
	Admin Support		0.02 fte		2080	40	45	1,800			1,800
	Project Controls Support		0.08 fte		2080	160	50	8,000			8,000
	Computer Upgrade		2.0 ea	7000					14,000		14,000
	Travel for Agency Meetings		4.0 ea	2000					8,000		8,000
	Total Cost (Per Year)										42,200
	Total Cost (Per Year Rounded)										42,200
	Detailed Work Package Update-(FY 2000-2003) 4 Year Duration		4 yr	42,200		0		0	0		42,200
						0		0	168,800		168,800
	Detailed Work Package Update-(FY 2004-2030) 27 Year Duration										
	Cost Estimator		0.02 fte		2080	40	65	2,600			2,600
	Admin Support		0.005 fte		2080	10	45	450			450
	Project Controls Support		0.02 fte		2080	40	50	2,000			2,000
	Computer Upgrade		1.0 ea	7000					7,000		7,000
	Travel for Agency Meetings		1.0 ea	2000					2,000		2,000
	Total Cost (Per Year)										14,050
	Total Cost (Per Year Rounded)										14,100
	Detailed Work Package Update-(FY 2004-2030) 27 Year Duration		27 yr	14,100		0		0	0		14,100
									380,700		380,700
1.1.2	**Project Management-FY 1995-2004) Capital Costs**										**8,637,400**

DETAILED COST ESTIMATE (CONT.SHEET)

Project: WAG 1/OU 1-07 B/ROD Amendment Alternatives
ALTERNATIVE 2
ISB, NPTF, and MNA

Type of Est. Planning | File No. 6223-AD | Date 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
1.2	**Treatability Studies**										
1.2.1	**Treatability Studies ISB, Pump and Treat and MNA**										
	Treatability Studies- Pump and Treat(Thru FY 99)		1 ls	7936000					7936000		7,936,000
	ISB Technical Integration Activities (FY 00)		1 ls	283000					283000		283,000
	ISB Preparation of Field Evaluation Final report (FY 00)		1 ls	46000					46000		46,000
	ISB Modeling (FY 00)		1 ls	57000					57000		57,000
	ISB Pre-Design Optimization (FY 00)		1 ls	350000					350000		350,000
	ISB Alternate Electron Donor Evaluation (FY 00)		1 ls	176000					176000		176,000
	ISB Design Optimization Workplan (FY 00)		1 ls	33000					33000		33,000
	ISB Performance Monitoring Stategy Development (FY 01)		1 ls	36000					36000		36,000
	MNA Technical Integration Activities (FY 00)		1 ls	81000					81000		81,000
	MNA Vertical Profile Sampling (FY 00)		1 ls	266000					266000		266,000
	MNA Vertical Profile Sampling (FY 01)		1 ls	150000					150000		150,000
	MNA Data Analysis and Site Conceptual Model Update (FY 00)		1 ls	78000					78000		78,000
	MNA Monitoring Wells (FY 00)		1 ls	738000					738000		738,000
	MNA Monitoring Wells (FY 01)		1 ls	79000					79000		79,000
	MNA Modeling (FY 00)		1 ls	85000					85000		85,000
	MNA Performance Monitoring Strategy Development (FY 01)		1 ls	36000					36000		36,000
	Field Demonstration Report # 1 (FY 99)		1 ls	66000					66000		66,000
	Field Demonstration Report # 1 (FY 00)		1 ls	107000					107000		107,000
	Proposed Plan and ROD Amendment (FY 00)		1 ls	104000					104000		104,000
	Proposed Plan and ROD Amendment (FY 01)		1 ls	28000					28000		28,000
	Total Treatability Studies (FY99)										8,002,000
	Total Treatability Studies (FY00)										2,404,000
	Total Treatability Studies (FY01)										329,000
1.2.1	**Sub Total Treatability Studies**		1 ls	10735000					10735000		10,735,000
1.3	**Remedial Design**										
1.3.1	**Phase C Remedial Action Workplan and NPTF Design**		1 ls	469000					469000		469,000
1.3.2	**ISB Design**		1 ls						0		0
	30% ISB Design		1 ls	5076.6431					5076.6431		5,077
	30% ISB Design Comment Resolution and Incorporation		1 ls	546.75666					546.75666		547
	90% ISB Design		1 ls	4791.5171					4791.5171		4,792
1.3.2	**Sub Total ISB Design**										10,415
1.3.3	**Phase C Remedial Action Workplan and Supporting Documents**										
	Prepare DPTU RD/RA Workplan		1 ls	105434					105434		105,434
	DPTU RD/RA WP Final Comment Resolution and Incorporation		1 ls	16357					16357		16,357
1.3.3	**Sub Total Phase C Remedial Action WP and Supporting Doc's**										121,791
1.4	**Remedial Action Construction**										
1.4.1	**NPTF Extraction Wells**		1 ls	1300000					1300000		1,300,000
1.4.2	**NPTF Construction FY 00 and 01**		1 ls	1913000					1913000		1,913,000
1.4.3	**ISB Construction**										
	ISB RFP, Bid and Award		1 ls	1794.6489					1794.6489		1,795
	Construct ISB		1 ls	92000					92000		92,000
	Perform Pre-Final Inspection and Prepare Report		1 ls	363.20167					363.20167		363

	Prepare ISB Draft Final Inspection Report		1 ls	1127.2794					1127.2794		1,127
1.4.3	Sub Total ISB Construction										95,285
1.4.4	Remedy Performance Monitoring Wells										

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 2

ISB, NPTF, and MNA

Type of Est. Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.1	**Alternative 2 Remedial Action Operations**										
2.1.1	**GWTF Operations Transition to 1-07B**		1 ls	2466000					2466000		**2,466,000**
2.1.1	**Sludge treatment and Disposal**		1 ls	10000					10000		**10,000**
2.1.1	**Phase B Hot Spot Containment Operations**										
	Facility Operations-(FY 1995-1999) 5 Year Duration		5 yr	452400					2262000		**2,262,000**
	Facility Operations-(FY 2000) 1 Year Duration		1 yr	324000					324000		**324,000**
	Facility Operations-(FY 2001-2003) 3 Year Duration										
	Hot Spot Containment Facility Operations (Labor)										
	Project Engineer		0.10 fte		2,080	208	65	13,520			13,520
	Construction Engineer		0.25 fte		2,080	520	65	33,800			33,800
	Operations Engineer		0.25 fte		2,080	520	65	33,800			33,800
	Mechanical Engineer		0.10 fte		2,080	208	75	15,600			15,600
	Rad Con Tech		0.05 fte		2,080	104	45	4,680			4,680
	Industrial Hygiene		0.10 fte		2,080	208	55	11,440			11,440
	Admin Support		0.10 fte		2,080	208	45	9,360			9,360
	Electrician		0.05 fte		2,080	104	55	5,720			5,720
	Pipefitter		0.05 fte		2,080	104	60	6,240			6,240
	Operator		0.06 fte		2,080	125	55	6,864			6,864
	Laborer		0.10 fte		2,080	208	45	9,360			9,360
	Sampler		0.05 fte		2,080	104	65	6,760			6,760
	ECL Chemist (Air Analysis)		0.05 fte		2,080	104	65	6,760			6,760
	SMO Chemist		0.10 fte		2,080	208	65	13,520			13,520
	SMO Support		0.10 fte		2,080	208	65	13,520			13,520
	Sub Total- Labor Facility Operations										**190,944**
	Hot Spot Containment Waste Management (Labor)										
	Waste Specialist		0.15 fte		2,080	312	45	14,040			14,040
	Admin Support		0.05 fte		2,080	104	45	4,680			4,680
	Rad Con Tech		0.10 fte		2,080	208	45	9,360			9,360
	Laborer		0.10 fte		2,080	208	45	9,360			9,360
	Operator		0.05 fte		2,080	104	55	5,720			5,720
	Driver		0.05 fte		2,080	104	55	5,720			5,720
	Safety Engineer		0.08 fte		2,080	166	55	9,152			9,152
	Sub Total- Labor Waste Management										**58,032**
	Sub Total- Subcontract (Lab analysis)		100 ea	150						15000	**15,000**
	Hot Spot Containment Facility Operations (Material)										
	Water Blind Samples		24 ea	150					3600		3,600
	Air Blind Samples		24 ea	200					4800		4,800
	Misc Supplies		12 ea	1000					12000		12,000
	Misc Air Stripper Maint & Repair		1 lot	10000					10000		10,000
	Air Freight		5 ea	60					300		300
	Printing		1500 ea	0.1					150		150
	Vehicle		360 day	15					5400		5,400
	Heating, Air Stripper		36800 kw	0.035					1291.5		1,292
	Misc Power, Lighting		12000 kw	0.035					420		420
	Air Stripper, Fan & TAN 29		97000 lot	0.035					3395		3,395
	Sub Total Hot Spot Containment Facility Operations (Material)										**41,357**
	Hot Spot Containment Waste Management (Material)										
	Drums		12 ea	65.000					780		780

	Boxes		12 ea	150.000					1800		1,800
	Sub Total Hot Spot Containment Waste Management (Material)										**2,580**
	Total Cost (Per Year)										**307,913**
	Total Cost (Per Year Rounded)					0		0	0		**307,900**
	Facility Operations & Waste Mgmt(FY 2001-2003) 3 Year Duration		3 yr	307,900					923,700		**923,700**

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives
ALTERNATIVE 2
ISB, NPTF, and MNA

Type of Est. Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.1	**Alternative 2 Remedial Action Operations**										
2.1.2	**Phase C Operations**										
	NPTF/NGWTF/DPTU Operations-(FY 2004-2026) 23 Year Duration										
	NPTF/NGWTF/DPTU Operations (Labor)										
	Project Engineer		0.10 fte		2,080	208	65	13,520			13,520
	Construction Engineer		0.25 fte		2,080	520	65	33,800			33,800
	Operations Engineer		0.25 fte		2,080	520	65	33,800			33,800
	Mechanical Engineer		0.10 fte		2,080	208	75	15,600			15,600
	Rad Con Tech		0.05 fte		2,080	104	45	4,680			4,680
	Industrial Hygiene		0.10 fte		2,080	208	55	11,440			11,440
	Admin Support		0.10 fte		2,080	208	45	9,360			9,360
	Electrician		0.05 fte		2,080	104	55	5,720			5,720
	Pipefitter		0.05 fte		2,080	104	60	6,240			6,240
	Operator		0.06 fte		2,080	125	55	6,864			6,864
	Laborer		0.10 fte		2,080	208	45	9,360			9,360
	Sampler		0.05 fte		2,080	104	65	6,760			6,760
	ECL Chemist (Air Analysis)		0.05 fte		2,080	104	65	6,760			6,760
	SMO Chemist		0.10 fte		2,080	208	65	13,520			13,520
	SMO Support		0.10 fte		2,080	208	65	13,520			13,520
	Sub Total- Labor NPTF/NGWTF/DPTU Operations										**190,944**
	NPTF/NGWTF/DPTU Waste Management (Labor)										
	Waste Specialist		0.15 fte		2,080	312	45	14,040			14,040
	Admin Support		0.05 fte		2,080	104	45	4,680			4,680
	Rad Con Tech		0.10 fte		2,080	208	45	9,360			9,360
	Laborer		0.10 fte		2,080	208	45	9,360			9,360
	Operator		0.05 fte		2,080	104	55	5,720			5,720
	Driver		0.05 fte		2,080	104	55	5,720			5,720
	Safety Engineer		0.08 fte		2,080	166	55	9,152			9,152
	Sub Total- Labor NPTF/NGWTF/DPTU Waste Management										**58,032**
	Sub Total- Subcontract (Lab analysis)		100 ea	150						15000	**15,000**
	NPTF/NGWTF/DPTU Operations (Material)										
	Water Blind Samples		24 ea	150					3600		3,600
	Air Blind Samples		24 ea	200					4800		4,800
	Misc Supplies		12 ea	1000					12000		12,000
	Misc Air Stripper Maint & Repair		1 lot	10000					10000		10,000
	Air Freight		5 ea	60					300		300
	Printing		1500 ea	0.1					150		150
	Vehicle		360 day	15					5400		5,400
	Heating, Air Stripper		36900 kw	0.035					1291.5		1,292
	Misc Power, Lighting		12000 kw	0.035					420		420
	Air Stripper, Fan & TAN 29		97000 lot	0.035					3395		3,395
	Sub Total NPTF/NGWTF/DPTU Operations (Material)										**41,357**
	NPTF/NGWTF/DPTU Waste Management (Material)										
	Drums		12 ea	65.000					780		780
	Boxes		12 ea	150.000					1800		1,800
	Sub Total NPTF/NGWTF/DPTU Waste Management (Material)										**2,580**
	Total Cost (Per Year)										**307,913**
	Total Cost (Per Year Rounded)					0		0	0		**307,900**
	NPTF/NGWTF/DPTU Operations & Waste Mgmt(FY 2004-2026) 23 Year Duration		23 yr	307,900					7,081,700		**7,081,700**

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives
ALTERNATIVE 2
ISB, NPTF, and MNA

Type of Est. Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.1.3	**Phase C Project Management**										**3,563,000**
2.2	**Surveillance and Monitoring**										
2.2.1	**Groundwater Monitoring**										
	Groundwater Monitoring-(FY 1995-1999) 5 Year Duration		5 yr	199200					996000		**996,000**
	Groundwater Monitoring-(FY 2000) 1 Year Duration		1 yr	327000					327000		**327,000**
	Groundwater Monitoring-(FY 2001-2030) 30 Year Duration										
	Routine Sampling Round (FY 2001)		1 yr	207890					207890		207,890
	Analysis and Validation of Prior Year Samples (2002)		1 yr	166490					166490		166,490
	Statistical Sampling Round (2003)		1 yr	102700					102700		102,700
	Analysis and Validation of Prior Year Samples (2004)		1 yr	116690					116690		116,690
	Routine Sampling Round (FY 2005)		1 yr	161300					161300		161,300
	Analysis and Validation of Prior Year Samples (2006)		1 yr	193190					193190		193,190
	Statistical Sampling Round (2007)		1 yr	102700					102700		102,700
	Analysis and Validation of Prior Year Samples (2008)		1 yr	116690					116690		116,690
	Routine Sampling Round (FY 2009)		1 yr	111300					111300		111,300
	Analysis and Validation of Prior Year Samples (2010)		1 yr	191490					191490		191,490
	Statistical Sampling Round (2011)		1 yr	129400					129400		129,400
	Analysis and Validation of Prior Year Samples (2012)		1 yr	116690					116690		116,690
	Routine Sampling Round (FY 2013)		1 yr	111300					111300		111,300
	Analysis and Validation of Prior Year Samples (2014)		1 yr	166490					166490		166,490
	Statistical Sampling Round (2015)		1 yr	127700					127700		127,700
	Analysis and Validation of Prior Year Samples (2016)		1 yr	143390					143390		143,390
	Routine Sampling Round (FY 2017)		1 yr	111300					111300		111,300
	Analysis and Validation of Prior Year Samples (2018)		1 yr	166490					166490		166,490
	Statistical Sampling Round (2019)		1 yr	102700					102700		102,700
	Analysis and Validation of Prior Year Samples (2020)		1 yr	141690					141690		141,690
	Routine Sampling Round (FY 2021)		1 yr	138000					138000		138,000
	Analysis and Validation of Prior Year Samples (2022)		1 yr	166490					166490		166,490
	Statistical Sampling Round (2023)		1 yr	102700					102700		102,700
	Analysis and Validation of Prior Year Samples (2024)		1 yr	116690					116690		116,690
	Routine Sampling Round (FY 2025)		1 yr	136300					136300		136,300
	Analysis and Validation of Prior Year Samples (2026)		1 yr	193190					193190		193,190
	Statistical Sampling Round (2027)		1 yr	102700					102700		102,700
	Analysis and Validation of Prior Year Samples (2028)		1 yr	116690					116690		116,690
	Routine Sampling Round (FY 2029)		1 yr	111300					111300		111,300
	Analysis and Validation of Prior Year Samples (2030)		1 yr	191490					191490		191,490
	Sub Total-Groundwater Monitoring-(FY 2001-2030) 30 Year Duration										**4,163,140**
2.2.2	**Remedy Performance Monitoring**							#VALUE!	#VALUE!		#VALUE!
								#VALUE!	#VALUE!		#VALUE!

DETAILED COST ESTIMATE (CONT.SHEET)

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 2

ISB, NPTF, and MNA

Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.3	**Decontamination and Dismantlement**										
2.3.1	**GWTF D & D**										
	Characterization		1 ls	417818					417818		417,818
	Project Preparation		1 ls	14700					14700		14,700
	Preparation for Decontamination and Dismantlement		1 ls	10812					10812		10,812
	Facility Project Operations		1 ls	244786					244786		244,786
	Facility Decontamination and Dismantlement		1 ls	306999					306999		306,999
	Disposal and Transportation of Waste		1 ls	16368					16368		16,368
	Project Management and Support		1 ls	271974					271974		271,974
	Post-Decontamination and Dismantlement		1 ls	7630					7630		7,630
2.3.1	**Sub Total GWTF D & D**										**1,291,087**
2.3.2	**ASTU D & D**										
	Characterization		1 ls	231551					231551		231,551
	Project Preparation		1 ls	14700					14700		14,700
	Preparation for Decontamination and Dismantlement		1 ls	10812					10812		10,812
	Facility Project Operations		1 ls	244786					244786		244,786
	Facility Decontamination and Dismantlement		1 ls	306999					306999		306,999
	Disposal and Transportation of Waste		1 ls	16368					16368		16,368
	Project Management and Support		1 ls	271974					271974		271,974
	Post-Decontamination and Dismantlement		1 ls	7630					7630		7,630
2.3.2	**Sub Total ASTU D & D**										**1,104,820**
2.3.3	**ISB D & D**										
	Characterization		1 ls	66394					66394		66,394
	Project Preparation		1 ls	2162					2162		2,162
	Preparation for Decontamination and Dismantlement		1 ls	1441					1441		1,441
	Facility Project Operations		1 ls	33914					33914		33,914
	Facility Decontamination and Dismantlement		1 ls	107261					107261		107,261
	Disposal and Transportation of Waste		1 ls	7465					7465		7,465
	Project Management and Support		1 ls	39037					39037		39,037
	Post-Decontamination and Dismantlement		1 ls	1098					1098		1,098
2.3.3	**Sub Total ISB D & D**										**258,772**
2.3.4	**NPTF D & D**										
	Characterization		1 ls	138321					138321		138,321
	Project Preparation		1 ls	4505					4505		4,505
	Preparation for Decontamination and Dismantlement		1 ls	3002					3002		3,002
	Facility Project Operations		1 ls	70653					70653		70,653
	Facility Decontamination and Dismantlement		1 ls	133637					133637		133,637
	Disposal and Transportation of Waste		1 ls	8536					8536		8,536
	Project Management and Support		1 ls	81327					81327		81,327
	Post-Decontamination and Dismantlement		1 ls	2288					2288		2,288
2.3.4	**Sub Total NPTF D & D**										**442,269**

Bechtel BWXT Idaho, LLC
Rev 10-96
Page 19 of 19
Project WAG 1/OU 1-07 B/ROD Amendment Alternatives
ALTERNATIVE 2
ISB, NPTF, and MNA

DETAILED COST ESTIMATE (CONT.SHEET)

Type of Est. Planning **File No.** 6223-AD **Date** 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.3.5	**Well Abandonement**										
	Well Abandonement Planning		1 fte	1000	140	140	75	10,500	1000		11,500
	Safety, Job Control, ISMS		1 fte		80	80	75	6,000	0		6,000
	Well Head Preparation and Waste Disposal										
	Equipment Operator		1 fte		600	600	50	30,000	0		30,000
	Laborer		1 fte		600	600	45	27,000	0		27,000
	Waste Generator Services		1 fte		600	600	65	39,000	0		39,000
	Construction Engineer		1 fte		60	60	65	3,900	0		3,900
	Sub Contract Driller				60	0	65	0	0		0
	Mobilization, Demobilization		1 ls	20000					20000		20,000
	Rig Direct Time		1 ls	900000					900000		900,000
	Geologist Support		1 fte		900	900	65	58,500	0		58,500
	Construction Engineer		1 fte		450	450	65	29,250	0		29,250
	Safety, Rad Con, IH		1 fte		300	300	55	16,500	0		16,500
	Project Management		1 fte		250	250	75	18,750	0		18,750
2.3.5	**Sub Total Well Abandonement**										**1,160,400**